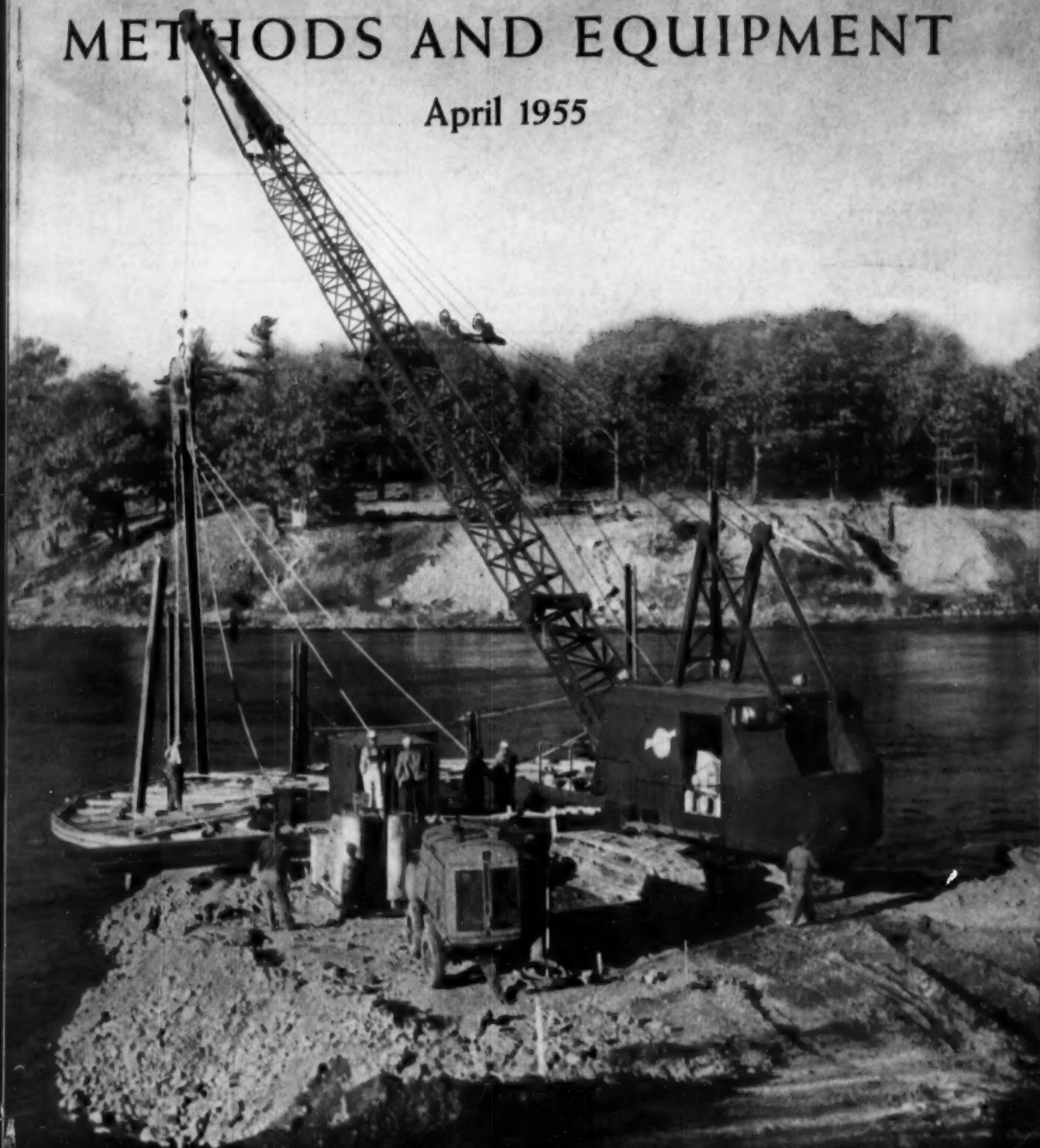


50 CENTS

# CONSTRUCTION

## METHODS AND EQUIPMENT

April 1955



A Mc GRAW-HILL PUBLICATION



## There's a **Torcon** unit to meet your job requirements

Here is a complete line of torque converters designed to meet a wide range of engine applications in all industrial fields.

The Clark Torcon unit is a three-element single stage converter of simple design, mass-produced. It is available off-the-shelf to owners and operators of equipment, as well as to manufacturers.

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### DIAMETERS

... 11" to 26"

### COMPLETE CHOICE

of options for easy fit into practically any torque transmission system.

For full information refer to illustrated easy-to-read Torcon bulletin.

**CLARK  
EQUIPMENT**



## This helpful bulletin describes TORCON advantages . . .

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Jackson 1, Michigan

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# B.F. Goodrich



## All-Nylon All-Purpose tires help build Kansas county highways

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**MASSIVE CLEATS** in the All-Purpose tread are curved for greater gripping action. "Buttons" on alternate cleats defy slippage. And the center rib of this BFG tire widens as it wears, putting more and more rubber on the road for longer service.

Marion County, Kansas. Tons of fill dirt, rock and gravel must be hauled 48 hours a week over back roads, often over no roads at all.

The result could be a high rate of tire mortality if the county didn't use new B. F. Goodrich *all-nylon* All-Purpose tires. This is the tire that's built upside down to resist rock bruises far better than ordinary tires. Instead of having breakers just on top of the plies, the All-Purpose in addition has special breakers between the *bottom* plies to guard against bruises that start inside the tire.

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B. F. Goodrich builds the All-Purpose with an *all-nylon* body. Nylon is stronger than ordinary cord materials, can withstand double the impact. This B. F. Goodrich tire outwears even its extra-thick tread—as much as 67%

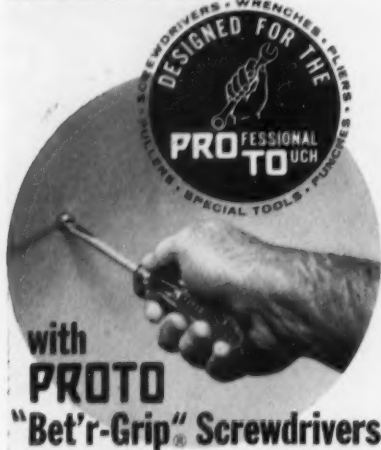
deeper than that of a regular tire—and can still be recapped over and over!

Find out how much more mileage you'll get, how much money you'll save, with B. F. Goodrich *all-nylon* All-Purpose tires (also in rayon at lower prices). Your B. F. Goodrich retailer is listed under Tires in the Yellow Pages of your phone book. Or write *The B. F. Goodrich Co., Tire & Equipment Division, Akron 18, Ohio.*

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## CONSTRUCTION METHODS AND EQUIPMENT

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Number 4

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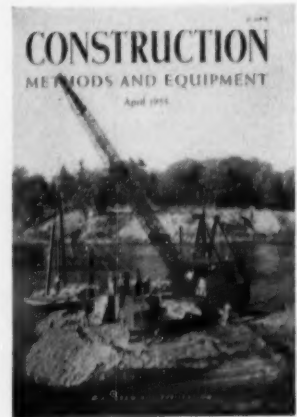
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### On the Cover

St. Lawrence Power Development. Work begins on the first major project with the placing and anchoring of a form for one of eight sheetpile cofferdam cells each 60 feet in diameter. Manitowoc 3500 Speed Crane, with a McKiernan-Terry 9B3 steam hammer, is getting set to drive a sheet—some of Bethlehem's M-101, varying in length from 38 to 60 ft. In the foreground, ready to give an assist, is an Ingersoll-Rand Gyro-Flo 600, and behind it is a Dravo Transportainer for tool storage.

Contractor is the Dravo Corp. of Pittsburgh; owner, New York State Power Authority; site, the south channel along Long Sault Island in the St. Lawrence near Massena, N. Y.



Member



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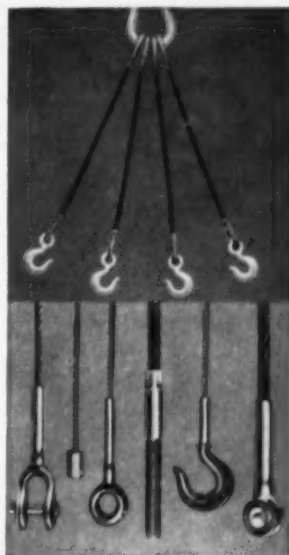


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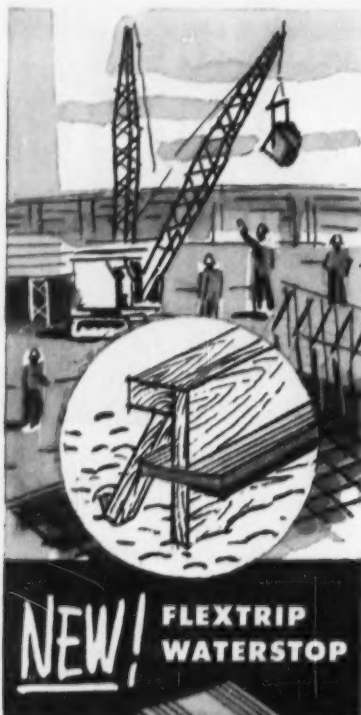
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## Pay Dirt in This Issue

April, 1955

### Advantages of High-Strength Bolts . . . . . 50

Erecting structural steel building frames with bolts rather than rivets is normally faster, quieter, can be done by less-skilled men, and there is no fire hazard. Here are instructions on how to tighten bolts properly.

### Portage Operation Moves Dredges . . . . . 52

Moving two 900-ton hydraulic dredges overland in minus 20-deg weather is a Herculean task. The owners investigated several methods but ended up by moving them intact, using undercarriages from 5-cu yd cranes.

### Rotary Drill Anchors Pipe Piles in Rock . . . . . 55

An air-powered rotary drill does a first-rate job of anchoring pipe piles into sharply dipped rock along Schuylkill River. It cuts a 2-ft socket under the pile in 45 min.

### Cranes Pour Buildings With 230-Ft Booms . . . . . 56

Three cranes with 230-ft booms reach 22 stories on a New York City housing project. Made of lightweight alloy steel aircraft tubing, the long booms are self-raising.

### Revibration Boosts Quality of Concrete . . . . . 83

Contractor improves its strength, density, smoothness, and uniformity by revibrating just before initial set.

### Crawler-Tractor Specifications . . . . . 108

Comparison chart lists important features of all U.S. track-type tractors now in production, in handy form.

### Crane R ripraps Coastal Embankment . . . . . 149

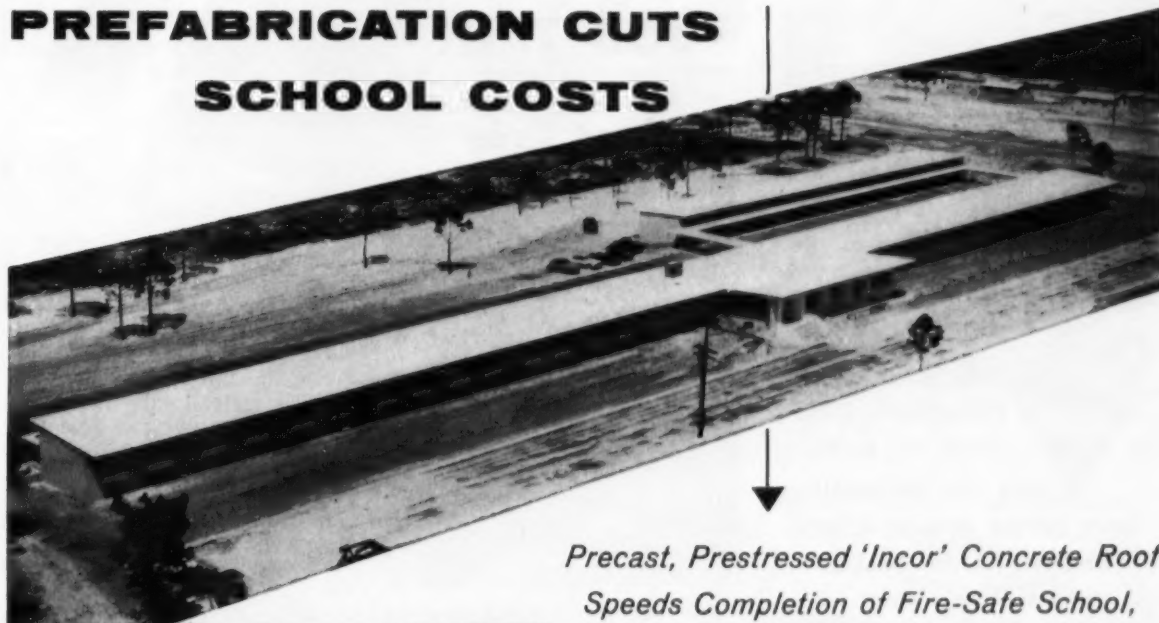
Riprapping a highway along the Pacific Coast is a race against time and tide. Contractor works only at low tide.

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## NEXT MONTH

A 36-in. belt conveyor mounted across a Caterpillar D8 tractor loads gravel fill into two lines of railroad cars. Front-end loaders dig into the bank, and dump into a hopper at the base of the conveyor. More than 50 cars are loaded every day.

# PREFABRICATION CUTS SCHOOL COSTS



## Precast, Prestressed 'Incor' Concrete Roof Speeds Completion of Fire-Safe School, At Big Saving in Cost



● With enough children being born every fifteen minutes to fill a classroom, and a million pupils in sub-standard quarters, the nation faces a race against time in solving the school problem.

Fort Lauderdale comes up with a sound solution. Dillard Elementary School, with 21 classrooms and about 25,000 sq. ft. of floor space, was completed 18 weeks ahead of schedule. Cost, \$273,000.—\$38,500. under the appropriation.

Built of fire-safe concrete, speed and economy pivoted on the roof system, consisting of 32,000 sq. ft. of double-tee, precast, prestressed roof slabs, 221 in all. Each slab is 34½ ft. x 4 ft., with 23 ft. clear span and 6 ft. cantilever on one side, 4 ft. on the other.

With ten hours' steam-curing, dependable 'Incor'® high early strength produced 4000 psi in 20 hours for pre-tensioning and stripping immediately thereafter . . . 11,000 sq. ft. of roof slabs placed in an eight-hour day . . . electric conduits and outlet boxes precast in the slabs.

Double-tee design gives pleasing beam effect. Quality concrete, with smooth exposed roof and ceiling surfaces, only required painting to finish.

Another example of attractive, fire-safe construction, faster and at less cost, thanks to the two I's—Ingenious design and 'Incor' performance.

\*Reg. U.S. Pat. Off.

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BROWARD COUNTY BOARD  
OF PUBLIC INSTRUCTION

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VAN W. KNOX, JR.

General Contractor:  
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...power units, either gasoline engine or electric motor interchangeable.

...vibrator heads, from 1 5/8" to 3", and grinding heads interchangeable.

...replacement drive shafts cost less.



Model M-12, with 4.6 HP Wisconsin engine, wheelbarrow mounted.



Model ME-13, with 2.5 HP, 110-volt electric motor.



Model M-9, with 2 HP Lauson engine, automatic clutch.

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## ★ JOB TALK ★

### ... About Tires



TRUCK MOUNTING: 9-21 tubeless tire used every day on a 3 1/2-ton truck.

### New to Contractors ... Tubeless Tires

INTRODUCTION OF TUBELESS TIRES as original equipment on '55 model cars and on some small trucks, has spread into the entire truck and earthmoving equipment field faster than had been anticipated.

Goodyear Tire & Rubber Co., for example, is producing tubeless tires in a range of sizes covering everything from panel delivery trucks to tractor trailers and earthmovers, with other leading manufacturers not far behind. Over 5,000,000 truck test miles have been logged and some large fleets have been using tubeless tires for months (including Denver-Chicago Trucking Co., Inc., using the new tires in the 10.00-20 size.) Off-road haulers (such as M. A. Hanna Coal Co. and Sunnyhill Coal Co.) also are conducting "in service" tests on larger earthmoving vehicles.

To bring tubeless tires to the entire truck field, Goodyear engineers designed and developed an air-locking rim. Conventional tires on most larger trucks are mounted on flat base rims whose removable side flanges cannot be made airtight. This was no problem on smaller trucks, since tubeless tires can be mounted on existing drop-center rims and wheels. The conventional flat base rims, however, will not accommodate tubeless tires.

Goodyear has found that best tubeless truck tire performance with drop-center rims ends approximately at the 10.00-20 size. Beyond that, mounting a tubeless tire on a drop-center rim is almost impossible. To utilize tubeless tires beyond that size, a new type of rim was needed.

Result is a three-piece rim with a small "O" rubber ring which locks in air. This ring is compressed between the rim's base and side ring. It can be installed within seconds and will last the life of the tire. The tubeless tire itself is virtually the same as a conventional truck tire except for a minor change in the bead base shape. Full flange height and support are retained by the new rim.

In addition to providing this necessary strength, the Goodyear "Tru-Seal" rim: (1) permits universal application to all sizes and all shapes of truck tires, including all types of high-load construction and cast-wheel equipment; (2)



A 50-TON COAL HAULER gets hard service out of Goodyear 18.00-25 Hard-Rock Lug tubeless tires and Tru-Seal rims.

simplifies tire mounting, inasmuch as the valve is attached to the rim and tubes and flaps are eliminated; (3) enables use of standard dimensions of height and width of conventional tires; (4) assures a reduction in weight, since the tire and rim assemblies weigh up to 12 lb less than a conventional 10.00-20 tire, tube and rim assembly.

Truckers will be able to realize important time savings simply because of simplified repair procedures, it is predicted. Changing a conventional large tire, they say, is a 70-min job on the average. Plugging a puncture on a tubeless tire, which can be left on the rim while being repaired, is a 15-min task.

In a current test, the company  
(Continued on page 16)



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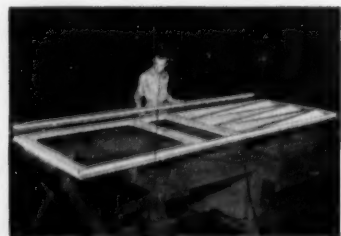
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A NORTHWEST

# KAWNEER

The Kawneer Metal Wall on the Equitable Life Assurance Building San Francisco, California, consists of stamped aluminum spandrel panels and stainless steel mullions and jambs combined with aluminum sash.



Assembly of shop prefabricated, weather resistant Kawneer window-spandrel units.

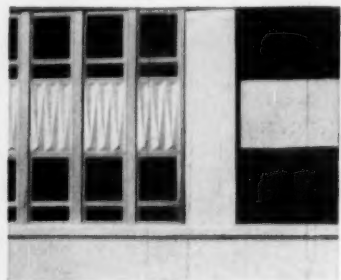


Illustration of wall area before and after installation of prefabricated Kawneer units.

**Architects:** W. D. Peugh (deceased)  
Loubet & Glynn, A.I.A., San Francisco  
**Consultant Architect:** Irwin Clavan, A.I.A., New York  
**General Contractor:** Dinwiddie Construction Co.,  
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For personal assistance from Kawneer's metal wall engineers, just phone, wire or write.



### Outstanding

### Kawneer

### Metal Wall

### Jobs

- 1931—St. Paul City Hall and Court House (photo above)
- 1933—Mellon Institute of Industrial Research
- 1933—Boulder Dam Power Houses and Towers

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# ENGINES CLEAN, UPKEEP COSTS

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Reno, Nevada, operates mechanized equipment worth many millions of dollars. Diesel equipment alone, for example, is valued at nearly \$3,000,000. For many years now, Isbell has lubricated engines in this vast array of equipment with Texaco. The company explains that —

"Considering the tough jobs we do where our equipment is exposed to dirt and bad weather, Texaco gives our engines outstanding protection. Our engines run clean, bearing wear is at a minimum and down time is negligible. Our maintenance costs are low, too."

Isbell relies on the famous *Texaco Ursa Oil* series — a complete line of lubricating oils especially refined to make diesel and heavy duty gasoline engines give *more power with less fuel over longer periods* between overhauls. Whatever the size, type and speed of *your* engines, or fuel used, there is a member of this famous series exactly right to assure these benefits.

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For wheel bearings, Isbell uses *Texaco Marfak Heavy Duty* — it protects against dirt and moisture, seals itself in, assures safer braking. No seasonal change required.

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FOR ALL CONTRACTORS' EQUIPMENT



Oliver Super 77 with hydraulic front loader

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Here is power like never before. And both Supers offer a choice of gas or diesel engine. The gas engine has a compression ratio of 7.0:1 to give you more power on less fuel. And the diesel is a full diesel—starts and runs on diesel fuel alone. Pick the fuel that fits your work, saves the most.

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These tractors take a variety of equipment... are useful on hundreds of different jobs. Test them yourself. Find out why an Oliver Super is your best buy for power, features and value—now, and for years to come! See your Oliver Industrial Distributor for a demonstration.

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A complete line of industrial wheel and crawler tractors



Oliver Super 88 with HydroTrencher. This trencher has a ½-yard capacity and quick, positive hydraulic control. It digs to 12 feet, loads to 12 feet.





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*join to give you more complete lifting service  
from one source!*

It seemed a logical move to combine into one organization the world's oldest and largest manufacturer of lifting jacks, Duff-Norton; and a leading producer of high quality hoists, The Coffing Hoist Company.

That's exactly what happened March 1 when Duff-Norton purchased The Coffing Hoist Company. Now, with the pooling of engineering skills and experience, the joining of sales departments and the combining of two complete lines of lifting tools, you can expect better service when it comes to lifting, low-

ering, pushing, and pulling jobs from either the floor or ceiling.

Josiah Barrett, the founder of Duff-Norton, invented the world's first ratchet lever jack in 1883. Today, the line of high-quality jacks includes some 203 different types and sizes of ratchet, screw, hydraulic, and air motor powered models from compact 3-ton capacity hydraulic jacks to giant 100-ton capacity air power jacks.

F. W. Coffing, who founded the Coffing Hoist Company in 1928, invented the first ratchet lever hoist

and also developed the first portable lightweight electric hoist. Coffing hoists are recognized as high quality, low maintenance products. The Coffing line includes over 100 different sizes and models from 500 pound to 25 ton capacities in ratchet lever, standard and lightweight spur gear, and electric hoists.

See your local distributor or write for complete details on jacks to the Duff-Norton Company, Pittsburgh 30, Pennsylvania. For hoists, write to the Coffing Hoist Division, Duff-Norton Company, Danville, Illinois.

## Duff-Norton Jacks Coffing Hoists

*Giving Industry A Lift Since 1883*

# THEY'RE HERE! NEW CHEVROLET



**New models . . . more models . . . higher G.V.W. Designed and built the way you can count on Chevrolet, the leader, to build them. Ready to do more jobs. Do 'em faster. Do 'em better. And do 'em with new economy.**

#### **Dressed for a new bonus**

For the first time in any truck line, *two* distinctly different styling treatments are offered by Chevrolet. One in light and medium models, another in heavy-duty. Each is a new, profitable advertisement-on-wheels for you and your business.

#### **Measured for a new savings**

Makes a whale of a difference to get a truck that fits the job. And in Chevrolet you get it! With 75 different models, all having the industry-standard 34-inch frame width . . . 15 wheelbases, ranging to 220 inches . . . three different chassis types, conventional, forward control, low cab forward . . . and with maximum G.V.W.'s upped to 18,000 lbs.—Chevrolet's new line of Task-Force Trucks offer the *exact* truck to do the job you

# THEY'RE HERE! NEW CHEVROLET

# Task-Force TRUCKS



need done . . . with operating costs lower than ever!

There's new Overdrive for even bigger gas savings on  $\frac{1}{2}$ -ton models . . . proved truck Hydra-Matic on  $\frac{1}{2}$ -,  $\frac{3}{4}$ - and 1-ton models—each optional at extra cost. And now, as standard equipment, Power Brakes are featured on 2-ton models (optional on all others) and Tubeless Tires are standard on  $\frac{1}{2}$ -ton models.

## Powered for economy

Whether you deliver door-to-door or haul state-to-state, Chevrolet's *six* new "high-voltage" engines offer the right power-combination for dependable, economical performance on every job. All are of efficient valve-in-head design with high compression ratios. All feature the surer kick-off and bigger gener-

ator capacity that only Chevrolet's new 12-volt electrical system delivers.

Chevrolet's new "under-the-hood" features are almost endless. Engine mountings are completely redesigned, cooling and lubricating systems made more efficient, fuel system improved . . . on and on they go, setting a new pattern for the truck industry.

## Investigate without delay

So revolutionary are the many new and profitable features advanced by Chevrolet's new Task-Force that truck users everywhere should see their Chevrolet dealer today. Learn the complete story and get started on your way to better trucking. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

# Task-Force TRUCKS





## Thermoid Industrial Brake Linings put more "STOP" in your brakes!

Whether you need a light duty lining or a heavy duty brake block for extreme service conditions, you'll find a Thermoid product with the friction you require. You'll find that your maintenance costs and "down time" are held to a minimum because Thermoid Industrial Linings provide smooth positive braking *plus* extra long life.

When you need Brake Lining, or Brake Blocks, be sure to get Thermoid—choice of leading construction equipment manufacturers.



*Thermoid's outstanding line of friction materials is also available in a complete line of woven, molded and special type clutch facings for all construction applications. Ask your supplier.*



**Thermoid Company**  
Industrial Friction Materials Division  
Trenton, N.J.

### JOB TALK . . . Continued from page 6

drove 8 nails into a tire and, running it at a 50% overload, found that after 3,200 mi. no loss of air had occurred, although the heads of the nails had completely worn off. This air retention advantage permits a trucker to save time by making repairs on the road or at the end of a run.

Other advantages cited by the company include: (1) avoidance of blowouts, since many small tire injuries that eventually cause blowouts can be detected as slow leaks in tubeless tires, enabling users to make repairs before serious damage occurs; (2) cooler running: tubeless tires run 15 to 25 deg. cooler than conventional tires and tubes; (3) no extra cost, since tubeless truck tires retail at the same price as Goodyear's conventional truck tires and tubes. According to the company, the cost of changing to "Tru-Seal" rims and tubeless tires will range generally from \$17 to \$24 per wheel.



### Loader's Tong Attachment Quickly Removes Curbing

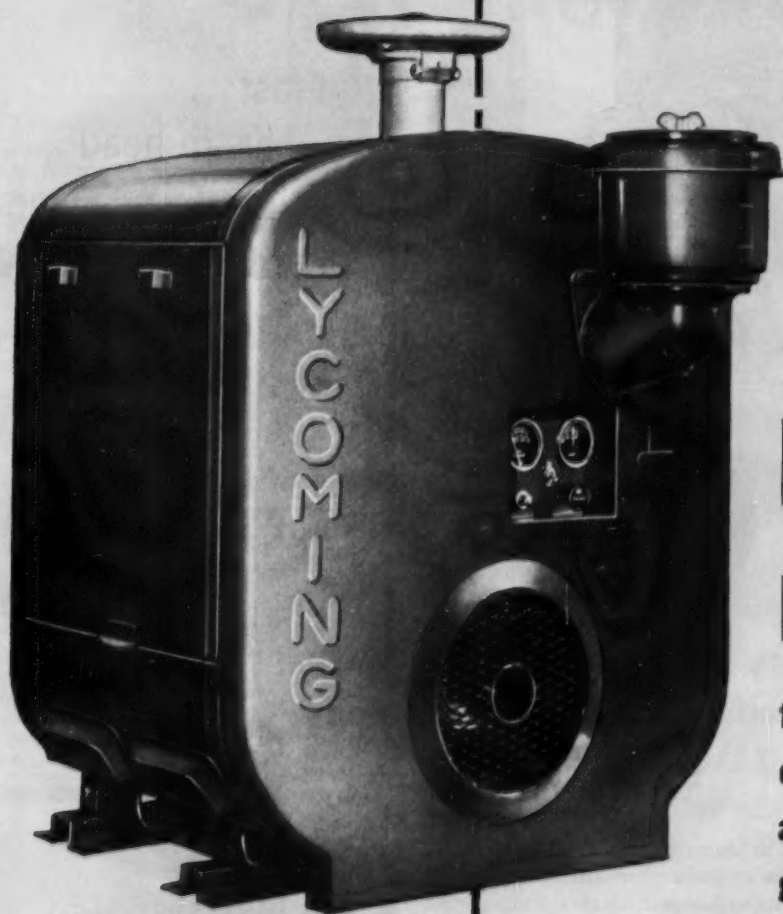
SELF-CLOSING TONGS attached to the bucket of a Payloader easily handle heavy curbing for Rock Asphalt, Inc. of Buffalo. Made by Heppenstall Co. of Pittsburgh, the tongs weigh 30 lb and can lift a 500-lb load. To pull out an old piece of curbing, the bucket lowers the tongs with the jaws open. When the tongs are raised, the jaws close on the curbing and hold it firmly, as it is pulled out of the ground. As the curbing is set down on a firm surface, the tongs open automatically.

# At last

a valve-in-head,  
air-cooled engine that delivers

***FULL POWER***

rated at 30 h.p.! delivers 30 h.p.!



## Lycoming's new C2-90

for construction field  
oil and gas industry  
agricultural service  
general industrial use

44 years of engine-building experience for aviation, automotive and marine fields stand behind Lycoming's new C2-90. Over \$1,000,000 and 5 years of time have gone into its development.

# New Lycoming **FULL**

Now... an amazing new 30-h.p. engine



Lycoming C2-90  
2-cylinder 30 h.p.

Lycoming—44 years a leading designer and producer of engines—now presents a new, advanced design industrial engine. In addition to traditional air-cooled advantages of lighter weight, lower cost, all-weather performance and superior endurance, this amazing 30-h.p. unit offers:

- FULL POWER performance—*rated* at 30 h.p.—*delivers* 30 h.p.!
- 1000 hr. continuous-duty life without overhaul.
- Highest horsepower and torque per cu. in. displacement in air-cooled field.
- Dependable operation under all weather conditions.
- Complete interchangeability—identical mounting and shaft dimensions with other major air-cooled industrial engine units in horsepower range.
- Reliability and simplicity for easy maintenance.

*First of Lycoming's new family of 2- and 4-cylinder FULL POWER Air-Cooled Engines!*

## THE

①

At last...  
a valve-in-head  
design that delivers  
**FULL POWER**

②

At last...  
positive pressure  
lubrication,  
rugged construction  
that mean **LESS**  
**DOWNTIME**

③

At last...  
simplified design  
that assures **EASY**  
**INSTALLATION**  
**AND**  
**SERVICING**

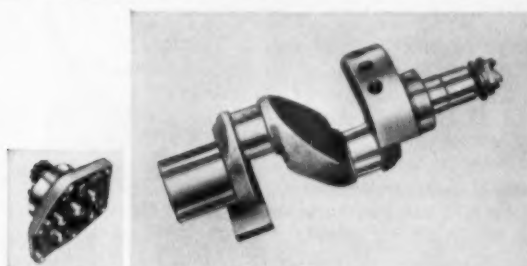
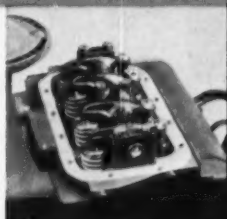


# **POWER** air-cooled engine

with these 3 unique advantages:

## FACTS

Valve-in-head design and direct valve porting result in higher efficiency . . . greater horsepower . . . improved fuel economy . . . longer engine life.



Oil pumped continuously under pressure to all moving parts. Result: less wear and overheating at friction points . . . longer, more trouble-free operation.

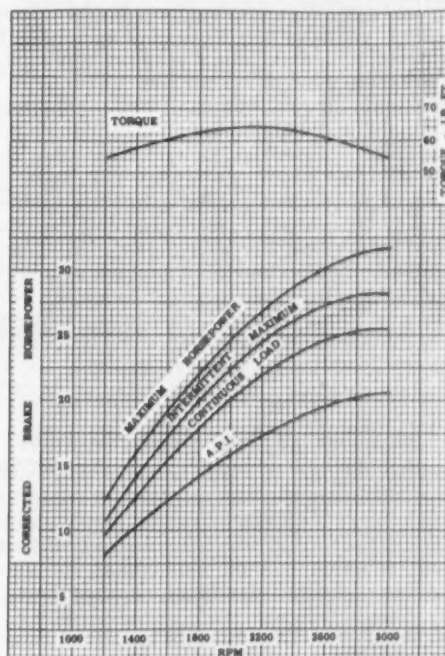
Crankshaft is extra-heavy and counterweighted. Drilled passages in crankshaft provide continuous pressure lubrication to bearings. Result: longer life.



- Readily accessible two-piece connecting rods are drop-forged, heat-treated steel . . . easy to install, remove.
- Precision-made automotive type bearings are easily replaceable . . . steel-backed . . . copper-lead lined. No cuts or grooves to break protective oil film.
- Engines have alloy valve seat inserts. Hard-faced positive type valves available—as well as hard-faced valve seats.
- Standard base allows complete interchangeability with other major air-cooled engines in its horsepower range.

## THE FIGURES

compare Lycoming's **FULL POWER** Performance



\* Find out how Lycoming's

### **FULL POWER C2-90**

can be tailored to your needs at no extra charge!

Accessories mounted to your requirements:

1. Starter and generator
2. Battery ignition
3. Industrial clutches & reductions  
(Special crankshaft extensions available)

**FOR FULL DETAILS WRITE TO:**

DIRECTOR OF SALES ENGINEERING, INDUSTRIAL ENGINES  
Lycoming Division, Avco Manufacturing Corporation, Williamsport, Pa.

FOR RESEARCH • FOR PRECISION PRODUCTION

LOOK TO

# **Lycoming**

DIVISION OF



STRATFORD, CONN.  
Manufacturing plants in Stratford, Conn., and Williamsport, Pa.

A member of Avco Defense and Industrial Products organization

## **DISTRIBUTOR INQUIRIES INVITED**

# It's Your Business . . .

## New Business Sets First-Quarter Record

CONTRACTORS ARE SIGNING UP new heavy construction business at an unprecedented high rate. That's the picture you get from contract awards which set a new all-time high of more than \$4 billion during the first 12 weeks of '55. This is a whopping 63% increase over the low volume a year ago when awards fell 34% below the first quarter of '53.

What's more, all major types of heavy construction are running ahead of last year and all regions of the country show substantial gains except the South which is off 15%.

Setting new record rates so far in '55 are: waterworks, up 47% over '54; highways, up 55%; sewerage, 27% ahead; private mass housing, with a thumping 118% increase; and commercial building, up 15%.

Also running above last year, although not setting new highs, are: earthwork, irrigation and drainage, up 25%; public buildings other than housing, 3%; bridges, 10%; private industrial building, up 58%; unclassified, up 86%; and public housing, up 7%.

### Federal Work and Industrial Stage Comebacks

Rounding out the strongest construction contract picture in years are the 96% increase in federal contracts and the 58% rise in private industrial building awards to date in '55. These big gains over '54 represent sharp reversals of their 1954 trends.

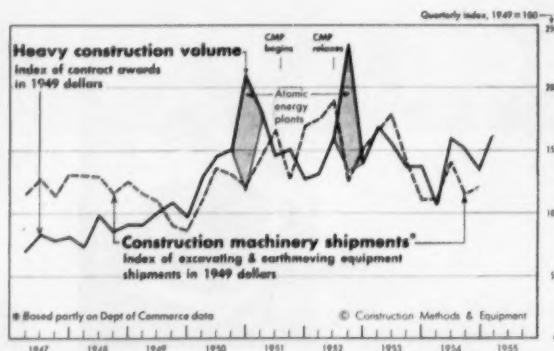
These developments should be no surprise to you because CM&E forecast 1955 increases of 9% and 6%, respectively, for federal and industrial contracts (CM&E Feb '55, page 30). While the percentage increases to date are far above the gains forecast, this is partly because volume was so low in the first quarter of last year. As the months roll in, these percentage increases are expected to slim down some. You should keep in mind, however, that although awards in these two categories are turning up, the '55 totals will probably fall well below their highs reached during the Korean war.

The significance of these upturns to contractors is that they broaden the bright '55 outlook for new work to include all major types of heavy construction.

## Equipment Shipments Start Uptrend

Shipments of excavating and earthmoving equipment snapped out of their downtrend in the fourth quarter of '54 by rising 4.5% above the third quarter and topping the year-ago level by 10%. This is the first time in more than a year that the CM&E Equipment Shipments Index is higher than the year-ago quarter.

The fourth-quarter upturn narrowed the gap between equipment shipments and the heavy construction contract trend (see chart which shows how



shipments have followed the contract trend closely since 1949). The higher volume of shipments reflects the sharp rise in heavy construction contracts which began in the second quarter of '54. With the contract trend still "up" in '55, the shipments index should continue to rise. Shipment figures for the first quarter of this year won't be available for a couple of months, but a sign of the trend is January's 14.4% increase over '54 sales reported by Caterpillar Tractor.

These indicators point to a reversal in '55 of the two-year decline in equipment shipments. The 1954 total was 17% below '53 and 24% under the record high in '52, according to the CM&E Index which measures shipments in constant 1949 dollars.

Although the over-all total declined in '54, road construction and maintenance machinery held even with '53, as rising shipments during the last six months offset the first-half drop. Machinery for mounting on tractors (primarily bulldozers) dipped 5% in '54. Tractor shipments, including both track-laying and wheel-type, dropped 18% below '53 for the year as a whole, although fourth-quarter '54 shipments rose 13% over the '53 quarter.

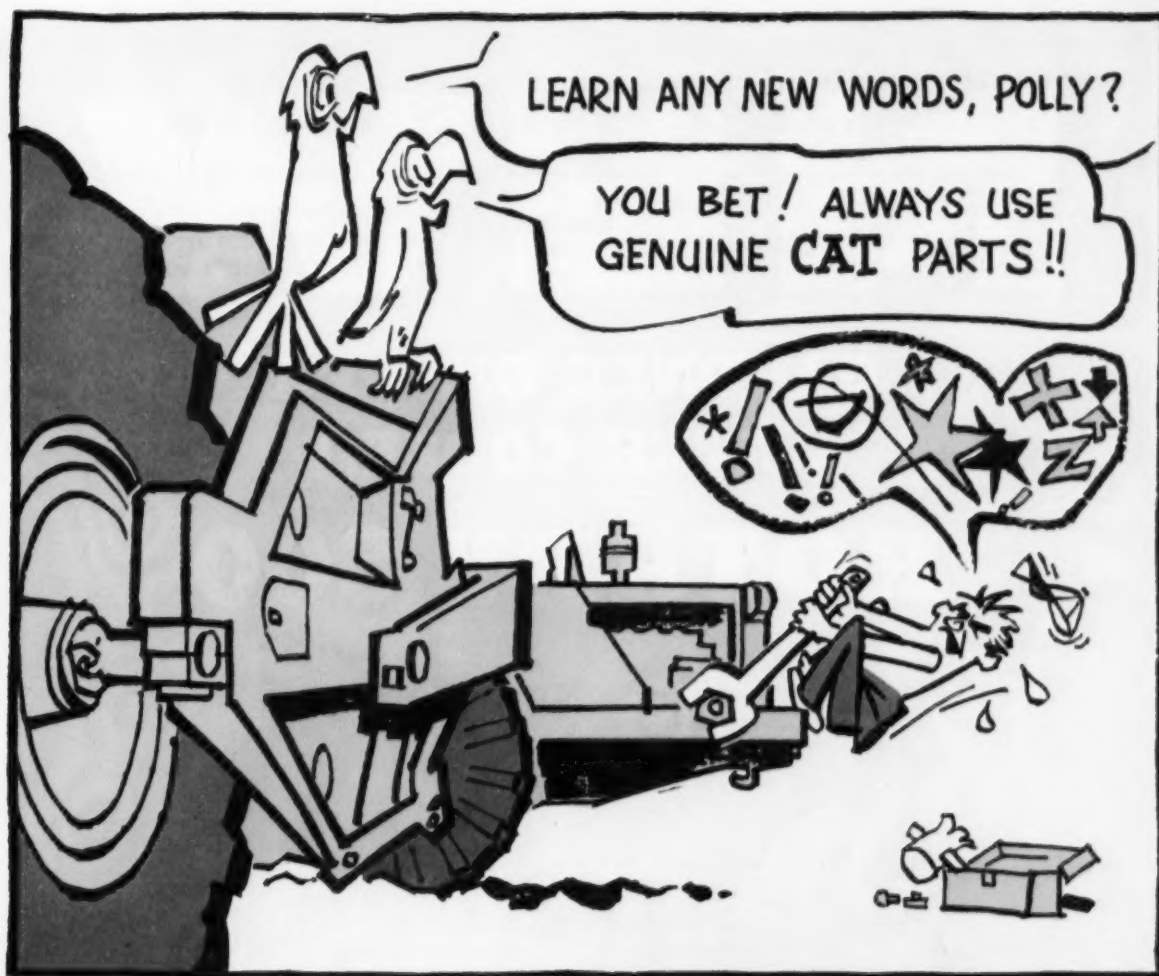
### Prices Rise Slowly

Construction machinery prices began to increase in December '54 on some types of equipment after holding steady for the first 11 months of '54. The BLS Index of manufacturer prices for construction machinery increased by 1.1% between November '54 and January '55, whereas the index increased by only 0.5% during the first 11 months of '54.

The February '55 price index (latest available as we go to press) is about the same as January, but it is 1.4% higher than February '54. This is a much smaller rise than the 4.2% increase during the 12 months ended February 1954.

Portable air compressors, up 5.8%, and power cranes and shovels, up 2.1%, have the largest price increase during the last 12 months. Mixers and pavers, which moved up in February '55, are 1.8% above a year-ago prices, while tractors are 1.5% higher than a year ago. In contrast, prices of scrapers and graders and hand-held air tools are unchanged.

(More Business News on page 24)



Down time sure brings out the classiest words in a man's vocabulary. Best way to avoid it is to insist on genuine CAT® parts every time. Then you're sure of getting parts that are made to the latest design, precisely manufactured of the right materials, rigidly inspected and tested.

**Take the parts in the engine's heat zone, for example.**

Different makes of liners, pistons and rings look a lot alike. But Cat cylinder liners are "wet type" design, made of hardened alloy iron with inner surfaces "Hi-Electro" hardened. Genuine Cat pistons are made of one-piece aluminum alloy castings, with a cast-iron band bonded into

the top to form the hard-service top ring groove. And that top ring—if it's genuine Caterpillar—is heavily chrome-faced. Each Cat ring is individually cast from specially alloyed iron. With substitute parts: who can be sure?

The difference on the job: Caterpillar-built parts in your engine's heat zone give you new-machine performance, shorter break-in time, longer life and the true economy of reduced repair costs and uninterrupted production. With substitute parts: who can be sure?

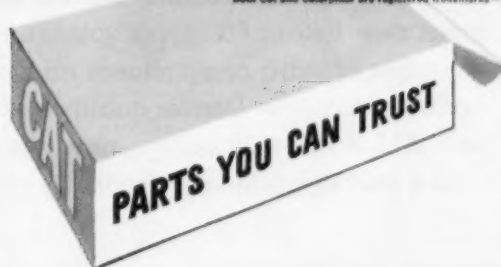
**Better get genuine Caterpillar parts every time.**

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.



# CATERPILLAR\*

\*Both Cat and Caterpillar are registered trademarks—©





# NEW

## GARDNER-DENVER WATER-COOLED ROTARY 600



Another triumph of Gardner-Denver engineering—the great new Rotary 600 gives you the basic rotary advantages of extra compactness and portability—plus exclusive Gardner-Denver quality features that assure new **ALL-WEATHER** utility—new operating economy—new and simplified serviceability on the job.

### COMPACT AND PORTABLE

Check these specifications — two-stage, multivane compressor. Parallel cylinders cast in one block. Weight: 8,700 pounds ready for operation. Width: 5' 11". Height: 8' over canopy. Length: 11' 2". Turning radius: 14'. General Motors Diesel Engine Model No. 6-71—1800 r.p.m. Electric starting. Send now for all the facts.

# MORE NEW ADVANTAGES THAN ANY OTHER ROTARY

## New Reliability in Any Weather—

- \* All weather's the same to the Gardner-Denver Rotary 600—from equator to pole—at 40 below or 115 in the shade.
- \* **WATER-COOLING** assures **ALL-WEATHER** operation. Exclusive water circulating system maintains constant operating temperature for both compressor and engine—automatically—under all climatic conditions.
- \* Cold weather engine starting's a cinch. Finger-tip hydro-shift clutch disengages compressor load.
- \* No dry starts—engine water warms up compressor oil before clutching in.

## New Lubrication Protection—

- \* Positive lubrication, sealing, and cooling under all operating conditions—through metered oil flow.
- \* Best operating temperature automatically maintained by water-cooled oil system.
- \* Condensation cannot contaminate oil or

freeze up oil circulation—it's all removed from the system.

## New Operating Economy—

- \* Economical fuel demand—longer compressor and engine life—are assured by the Thriftmeter—Gardner-Denver's simple, automatic speed control.
- \* Vibrationless operation saves wear and tear. Compressed air is delivered steadily—without pulsation.
- \* Air hose and tool life extended by dry, oil-free air from Rotary 600.

## New Simplified Maintenance—

- \* It takes only *minutes* to remove all compressor vanes for inspection or replacement. No costly compressor let-down time.
- \* Field maintenance simplified by inspection covers providing access to all vital parts.
- \* No metallic contact between rotors and cylinders.

**FOR EXTRA UTILITY, QUALITY, ECONOMY AND DEPENDABILITY . . .  
CHOOSE THE GARDNER-DENVER WATER-COOLED ROTARY 600**

## ONLY GARDNER-DENVER GIVES YOU THIS CHOICE!

Now Gardner-Denver Company helps you choose between a rotary or piston portable compressor. Whether your work calls for the Rotary 600, or the WH-600D—your best bet is a Gardner-Denver.

## FAMOUS GARDNER-DENVER WH-600D

Veteran of tough construction projects throughout the world—the Gardner-Denver piston 600 is easy to start—simple to operate—runs 6000 *plus* hours before overhaul—has Thriftmeter fuel and oil economy.



# GARDNER-DENVER



THE QUALITY LEADER IN COMPRESSORS, PUMPS AND ROPE DRILLS  
FOR CONSTRUCTION, MINING, PETROLEUM AND GENERAL INDUSTRY

Gardner-Denver Company, Quincy, Illinois

In Canada: Gardner-Denver Company (Canada) Ltd., 14 Curity Ave., Toronto 16, Ont.



**PROPER VIBRATION AND GOOD FORMS** used in this well-planned box girder intersection make it easy to produce the best possible concrete. Good vibration technique is simple with good equipment, and . . .

## Vibration Know-How Produces Better Concrete the Easy Way

One of the many ways experienced concrete foremen get maximum benefit from vibration is by planning concrete placement so each new dump is backed into a previous dump. This results in a smooth surface (no rock pockets) with maximum bond and greater strength. In the above photo the workman has just finished vibrating a dump at the center of a box girder intersection. As each succeeding dump is placed he will vibrate from the center outward, working it into concrete previously placed in the side members.

Appearance of sheen on the surface of the concrete gives visual indication that vibration is complete. With the modern high frequency vibrators pioneered by VIBER this requires only about 10 to 30 seconds, depending on the characteristics of the concrete.

• **Vibrator Operators** soon develop a "feel" which tells them the exact condition of concrete during vibration without seeing it. An experienced operator depends on this "feel" and the sound of his vibrator more than on the appearance of the concrete to tell him when vibration is completed.

Experienced operators describe the feel of concrete when the vibrator is first inserted as "rough" and "rocky." In a matter of seconds it "smooths out" and becomes "creamy," at which point vibration is complete and the unit may be removed from the concrete.

• **Good Forming** and proper vibration are essential where finished appearance is important, as it was on this overpass built by Erickson, Phillips, and Weisberg as part of the East Bay Freeway in Oakland, California. Tight forms made of well-seasoned lumber adequately braced can take full advantage of vibration to produce smooth, rock pocket-free concrete. VIBER'S replaceable rubber tipped vibrators are specially designed to prevent any damage to such forms, which might cause blemishes on the finished concrete surface.

• **For further information** on VIBER'S complete line of internal and external vibrators, contact your authorized distributor or VIBER COMPANY, 726 South Flower Street, Burbank, Calif., Dept. 75



CONCRETE VIBRATORS SINCE 1931

### IT'S YOUR BUSINESS . . .

Continued from page 20

## Work Injuries Cut 9% in '54

Contractors scored their best safety record in years during 1954 when they reduced work injuries 9% below '53. Last year, injuries totaled 205,000 for all employees on contract construction, according to preliminary estimates by the Bureau of Labor Statistics. This is the lowest number since 1950, which had the same total, and it is 11% below the high number in 1951.

The '54 record is an enviable one for contractors, when you realize that achieved during a year when they employed a near-record number of construction workers and put in place an all-time high dollar volume of new construction.

In putting together their improved safety record for 1954, contractors reduced permanent impairments to 6,600, 16% fewer than in '54 and the smallest number in this category during the five years 1950-54. Temporary total disabilities were held down to 196,000, 8.7% fewer than in '53 and the smallest number since 1950's 194,200. Deaths were reduced by 4% to 2400 in '54, the same as in '52 but higher than the 2300 in 1950.

## Failures Level Off

An encouraging sign for the construction industry is that the uptrend in contractor failures is now leveling off. During the first two months of '55, contractor failures numbered 200, according to Dun & Bradstreet. True, this is the highest number reported for any January-February period in the postwar years, but it's only a little more than the 195 who failed in the first two months of '54. So far in March, failures run even with corresponding weeks a year ago.

Not encouraging is the fact that while the number of contractor failures in '55 is about the same as in '54, their current liabilities are up sharply. Current liabilities of failing contractors average \$84,000 per firm so far this year for a total of \$16.7 million. This is more than double the \$37,000 average liabilities per contractor failure during the first two months of '54.

## BIG CONTRACT AWARDS

OF THE MONTH . . . See page 30



# LORAIN

# 85



Just look at all the new advantages you get in the new Lorain-85. And remember, they are in addition to all the time-tested features of Lorain's big-machine design and construction. For example, you still get Lorain's center-drive design that allows full engine power to be concentrated on any one operation or divided between as many as three simultaneous operations — Lorain's smooth, shock-absorbing Hydraulic Coupling power take-off for "never-say-die" application of power. This new Lorain-85 is designed and built to out-perform and out-last everything else in the 2-yard class. Get all the facts today!

THE THEW SHOVEL CO., LORAIN, OHIO

## WHAT'S *NEW* IN THE LORAIN-85

★ **FULL AIR CONTROLS** ★ metered air operation of shovel crowd and retract clutches ★ power boom lowering and derricking ★ crawler travel in both directions ★ dipper trip ★ crowd brake ★ crawler steering ★ tread lock ★ air operation of travel and crowd jaw clutches available.

★ **GREATER OPERATING RANGES** ★ 26 ft. shovel boom to dig and load higher ★ 27 ft. hoe boom to dig deeper.

★ **GREATER CAPACITY** ★ 45 tons lifting capacity.

★ **THIRD DRUM** ★ power load lowering ★ backing down the load.

★ **WIDER CRAWLER** ★ with 2 speeds in both directions.

★ **REMOVABLE COUNTERWEIGHT.**

★ **TORQUE CONVERTER** available.

**THERE IS MORE TO THE STORY ABOUT THE NEW LORAIN-85. YOUR NEARBY THEW-LORAIN DISTRIBUTOR WILL POINT OUT EVERY NEW FEATURE.**

# THEW LORAIN®

# Introducing the New



**New 262-HP Diesel Engine for more speed, more power**

**Faster, Easier Loading and Ejection**

**Improved Hydraulic Steering**

**New Cable Control Unit**

**Easier Operation, Greater Operator Comfort**



**INTERNATIONAL®**  
INDUSTRIAL POWER

**MAKES EVERY LOAD A PAYLOAD**

**GREATER RIM PULL** for sure-footed power through any type of going means faster loading, faster hauling with the **PAYSCRAPER**.



# "75" Payscraper

For the biggest of the big jobs, where outstanding performance is the key to profit, here's the rig:

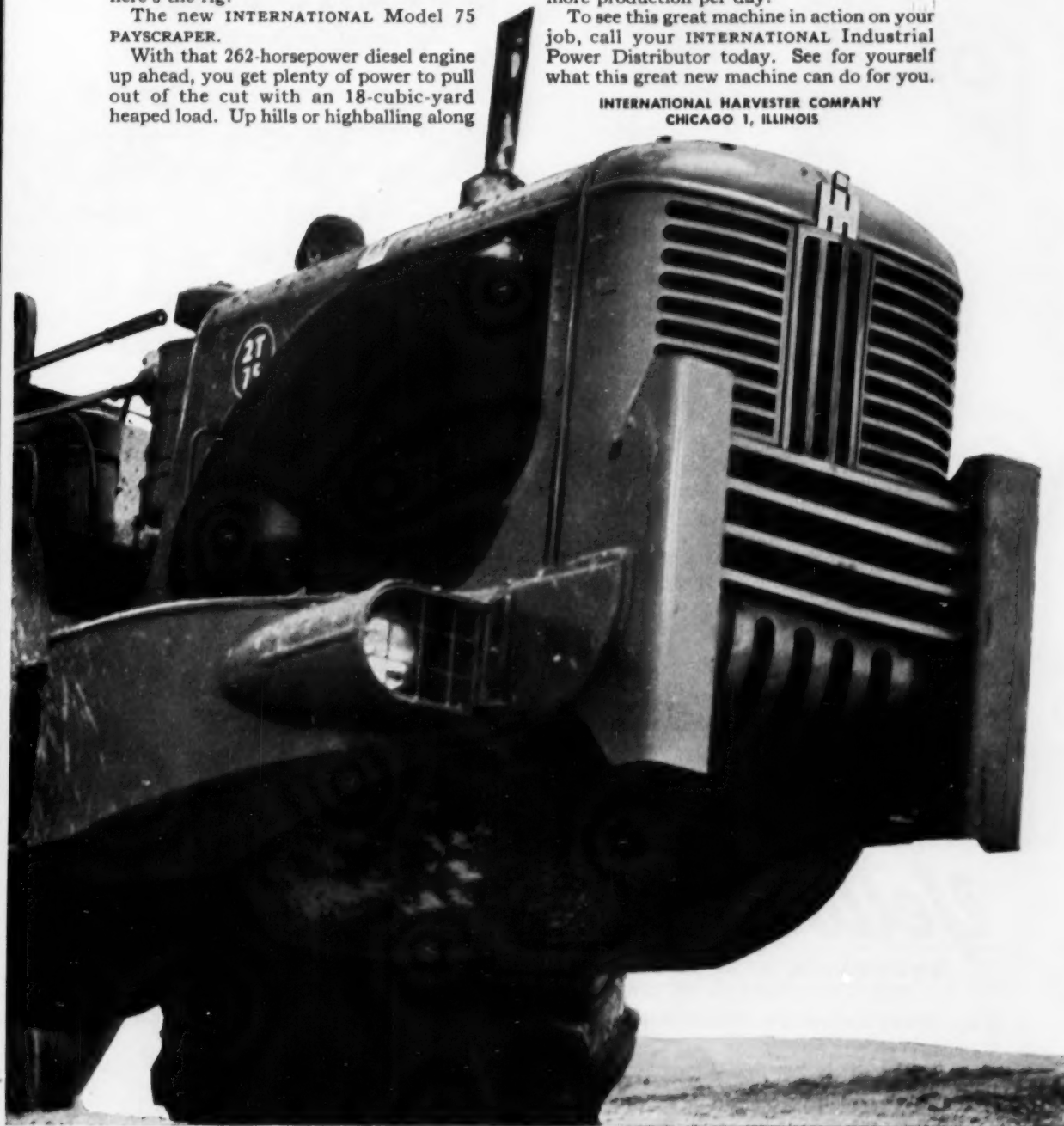
The new INTERNATIONAL Model 75 PAYSCRAPER.

With that 262-horsepower diesel engine up ahead, you get plenty of power to pull out of the cut with an 18-cubic-yard heaped load. Up hills or highballing along

haul roads at more than 24 miles per hour, the PAYSCRAPER has the power to deliver more production per day.

To see this great machine in action on your job, call your INTERNATIONAL Industrial Power Distributor today. See for yourself what this great new machine can do for you.

INTERNATIONAL HARVESTER COMPANY  
CHICAGO 1, ILLINOIS







**BRODERICK & BASCOM  
ANNOUNCES**

***NEW***

**YELLOW STRAND  
"POWERSTEEL"  
WIRE ROPE**

Another addition to the famous Yellow Strand family — the new "POWERSTEEL!" Made of higher carbon content steel, new "POWERSTEEL" is 15% stronger, assures longer life. It withstands shock, resists wear. Preformed, with Independent Wire Rope Core, "POWERSTEEL" is a heavy-duty, crush-resistant rope, designed for long service.

**STRONGER  
LONGER LIFE!**

Yellow Strand "POWERSTEEL" was proved in military service in World War II. Its long life has been established on rugged logging operations. Broderick & Bascom is now presenting this higher quality rope to industry. Check on Yellow Strand "POWERSTEEL" for your tough jobs — where extra strength is needed. See your Broderick & Bascom distributor, or write the branch nearest you for information.

***Yellow Strand***

**BRODERICK & BASCOM ROPE CO.**

4203 UNION BLVD. - ST. LOUIS 15, MO.

Manufacturers of Wire Rope for 79 Years

586 EDMUNDS ST.  
SEATTLE 4, WASH.  
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9441 HUNTER ST.  
LOS ANGELES 21, CALIF.

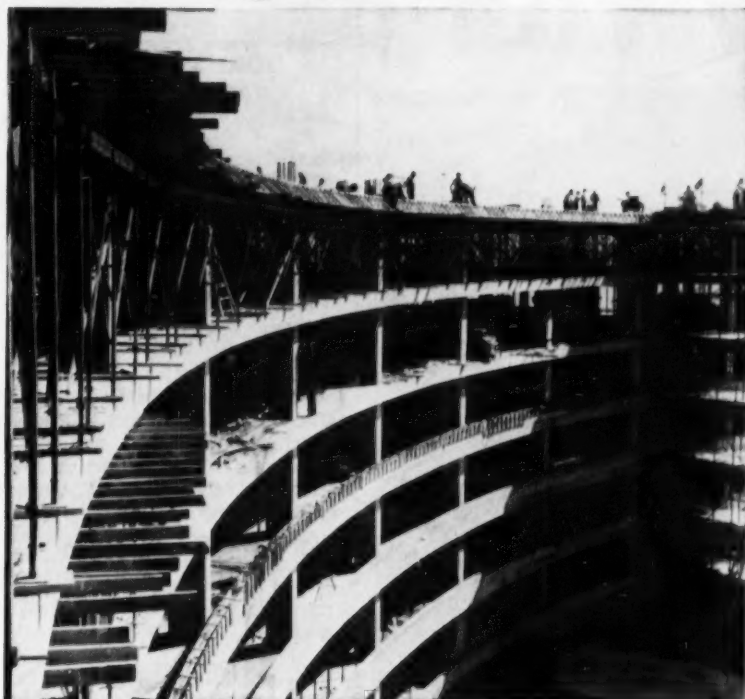
1519 N.W. MARSHALL ST.  
PORTLAND 9, ORE.  
117 JEFFERSON HIGHWAY  
NEW ORLEANS, LA.

1336 W. FULTON ST.  
CHICAGO 7, ILL.  
986 MARKET ST. ROAD  
HOUSTON 15, TEXAS

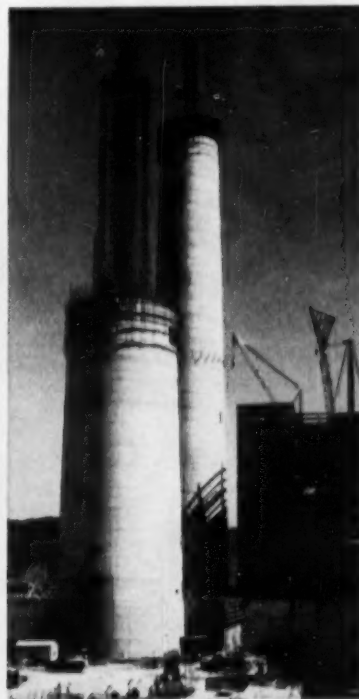


# Scaffolding Methods . . .

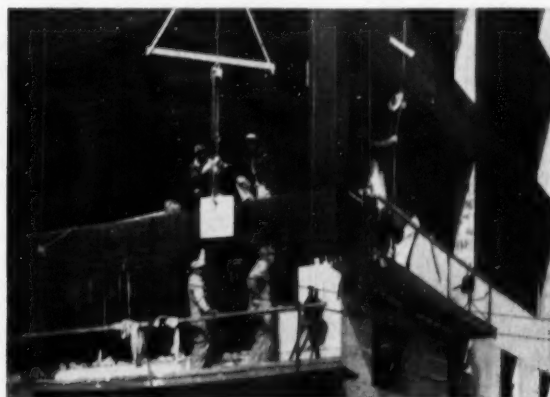
by Patent Scaffolding Co.



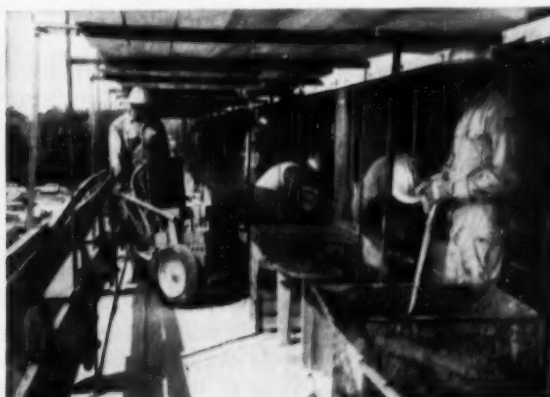
**CURVES ON MIAMI BEACH**—Three different types of PS Scaffolding can be seen doing three different jobs on the 14-story, \$14,000,000 Fontainebleau Hotel that curves 440' along the ocean front at Miami Beach. While 5-ft. wide "Trouble Saver"® Shoring frames are supporting formwork for 10th floor, single post Burton's Shores are being used for reshoring on the lower floors. At right, "Tubelox"® Scaffolding makes runways for wheeling concrete from hoist tower. Taylor Construction Co., general contractor.



**WORLD'S TALLEST**—Materials for three 707-ft. (from foundations) chimneys being built for the Indiana-Kentucky Electric Corp. near Madison, Ind. are hoisted by "Gold Medal"® Steel Hoist Towers 721 ft. 6 in. high. Custodis Const. Co., chimney contractor.



**TEAMED UP FOR SPEED**—"Gold Medal" Junior Safety Swinging Scaffolds and a block and tackle stone-lowering arrangement keep stonemasonry job moving at a rapid pace on the Prudential Life Insurance Bldg., Minneapolis. 15 of these light duty Scaffolding Machines, with 20-ft. platforms, keep men at correct working height as work advances. Block and tackle, hung from trolley beams on roof, rolls and lowers stone to men. Stonemasonry contractor, Axel Ohman. General contractor, C. F. Haglin & Co.



**TREND TO MECHANIZATION**—A clear area for maneuvering buggy loaded with half-pallet (120 bricks) to masons' stations is provided by 8-ft. wide "Gold Medal" Safety Scaffolding Machines. Scaffolding Machines are set away from wall to give masons an unobstructed 20-in. platform. This specially-designed PS Scaffolding, required by palletizing and mechanized handling of masons' materials, is furthering the trend to more efficient operations. Job is Cedar Apts. Extension, Cleveland. Mason contractor, W. M. West & Son.

To help you with your scaffolding and concrete shoring methods, PS offers a complete nation-wide engineering service available to you locally. See the Yellow Pages in your 'phone directory for the nearest Patent Scaffolding office or representative that sells and rents "Gold Medal" Scaffolds.

FOR GREATER SAFETY...EFFICIENCY...ECONOMY

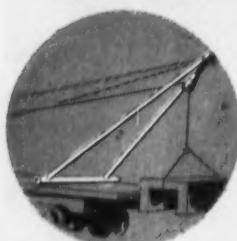
**THE PATENT SCAFFOLDING CO., Inc.**

38-21 12th Street, Dept. CM&E, Long Island City 1, N.Y.  
6931 Stanford Ave., Los Angeles 1, Calif.

Branches in all principal cities • in Canada: 355 Dufferin St., Toronto

for  
lifting  
jobs  
up  
to  
6400 lbs.

## compare the PITMAN HYDRA-LIFT with



**A-frame** Hydraulic power swings Hydra-Lift's boom 180°, lifts it through arc of 100°. With Hydra-Lift you're ready instantly to handle any lifting job within 180° radius of truck, **without moving the truck.** And because Hydra-Lift requires only 40" behind cab, you can still use truck bed for normal hauling.



**Hand Labor** Hundreds of owners use Hydra-Lift for lifting jobs they formerly did by hand because a crane was too expensive. Low-cost Hydra-Lift has changed that. More than half of all Hydra-Lifts sold pay for themselves first year, largely because of labor savings.



**Heavy Duty Crane** For lifting jobs up to 6,400 lbs., Hydra-Lift offers you all the advantages of an expensive, heavy duty crane, at only a fraction of the cost. And, because it moves from job to job at normal truck speeds, Hydra-Lift is far more economical than heavier cranes on scores of jobs.

**The Winner on all Counts.** Hydra-Lift is the amazing new truck crane that is saving hundreds of owners thousands of dollars a year. Why not get all the facts. Fill out and mail this coupon today.

**Pitman Manufacturing Company**  
300 West 79th Terrace  
Kansas City, Missouri

Please send me full details on the Pitman Hydra-Lift.

Name..... Title.....  
Company.....  
Street.....  
City..... State.....

### IT'S YOUR BUSINESS . . .

Continued from page 24

#### SOME BIG CONTRACT AWARDS OF THE MONTH

**H. D. Tousley Co.,** 925 E. St. Clair St., Indianapolis, Ind. Manufacturing building, power plant, offices, water tank and 175-ft chimney, plus waste processing plant and 1,800-car parking lot on 155-acre tract near Kokomo, Ind., for the Chrysler Corp., 1103 S. Home Ave., Kokomo. \$40,000,000.

**Savin Construction Corp.,** 10 Village St., East Hartford, Conn. Grading, drainage, paving and structures in connection with widening New Jersey Turnpike from north of Cranbury-South River Road to Woodbridge Interchange, Middlesex Co. for New Jersey Turnpike Authority, Administration Bldg., New Brunswick, N. J. \$5,707,338.

**Badgett Mine Stripping Corp.,** White Haven, Pa. Construction of 3.58 mi of Northeastern Extension in Bear Creek Township, and 3.72 mi in Bear Creek, Plains and Jenkins townships, both projects in Luzerne County for Pennsylvania Turnpike Comm., 11 North 4th St., Harrisburg, Pa. \$5,488,530.

**Cunningham-Limp Co.** 3087 W. Grand Blvd. Detroit 1, Mich. Plant, including administration offices, laboratory and engineering section at Troy, Mich., for Vickers, Inc., 1400 Oakman Blvd., Detroit, 38. \$2,250,000.

**George M. Brewster & Sons, Inc.,** 275 W. Fort Lee Road, Bogota, N.J. Grading, paving bridge 0.791 mi on Route 42 (North-South Freeway) Camden Co. second stage of approach of each system for Gloucester-Philadelphia Bridge for New Jersey State Highway Department, State Highway Dept. Office Bldg., 1035 Parkway Ave., Trenton, N.J. \$3,226,415.

**Associated Contractors,** Birmingham, Ala. (composed of Dunn Construction Co. 2508 3rd Ave., N., Birmingham, Ala.; Blount Bros. Construction Co., Bell Bldg., Montgomery, Ala.; Patterson-Emerson-Comstock Co. of Alabama, Brown-Marx Bldg., Birmingham, Ala., and Girdler Co., 244 E. Broadway, Louisville, Ky.) Alabama Ordnance

(More Big Jobs on page 245)

# HOW TO BUY V-BELTS

## FOR MORE POWER AND LONGER LIFE

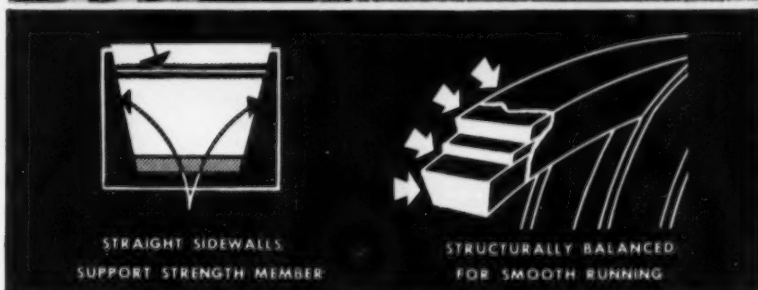
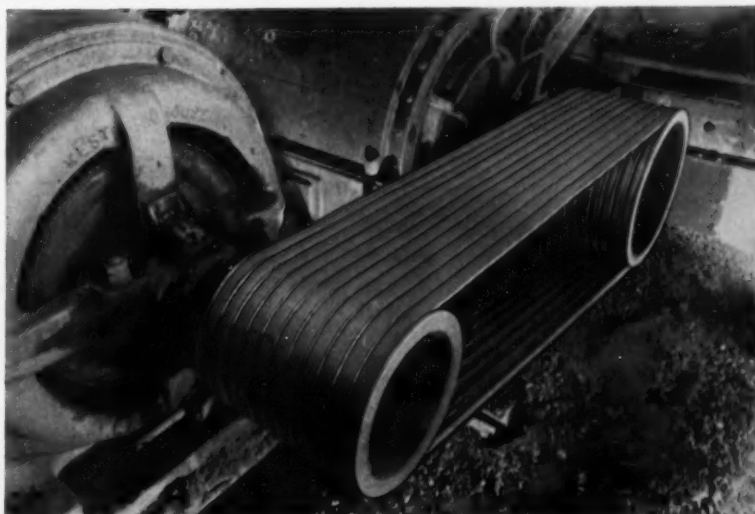
**...and get "More Use  
per Dollar"**

Look for a belt with straight side-walls and accurately positioned strength members that prevent sag in the "power line".

The "power line" or pulling section is the heart of a V-belt. It is here the belt strength members are located and it sets the load-carrying capacity of the drive.

Straight sidewall construction assures firm pressure in the lower or compression section of the V-belt so that when it rounds the pulley it supports the strength member in a straight line. All cords of the strength member should pull equally. If they "sag", as in some constructions, the outer cords are overworked and premature failure results. In addition, straight sidewalls exert a firm side-grip on the sheave grooves, eliminate slip and power waste.

Specify, by name, the V-belt most carefully manufactured so that every part is balanced to deliver full horsepower capacity and "More Use per Dollar" . . . specify R/M Super-Power or standard Condor V-Belts.



## R/M SUPER-POWER AND CONDOR V-BELTS

For longer life under shock loads, R/M Super-Power V-Belts have a new synthetic super strength member which delivers up to 40% more horsepower capacity; fewer belts can be used on the same drive for the same horsepower. They are oil-proof, non-spark and heat resistant. Both R/M Super-Power and standard Condor

V-Belts have straight sidewalls with strength members micro-positioned and destretched during manufacture. This prevents power waste and frequent shutdown for belt take-up. Let an R/M representative show you why R/M Super-Power or Condor V-Belts last longer . . . give you "More Use per Dollar".

RM-011



MANHATTAN RUBBER DIVISION — PASSAIC, NEW JERSEY

**RAYBESTOS-MANHATTAN, INC.**



Flat Belts



V-Belts



Conveyor Belts



Hose



Roll Covering



Tank Lining



Abrasive Wheels

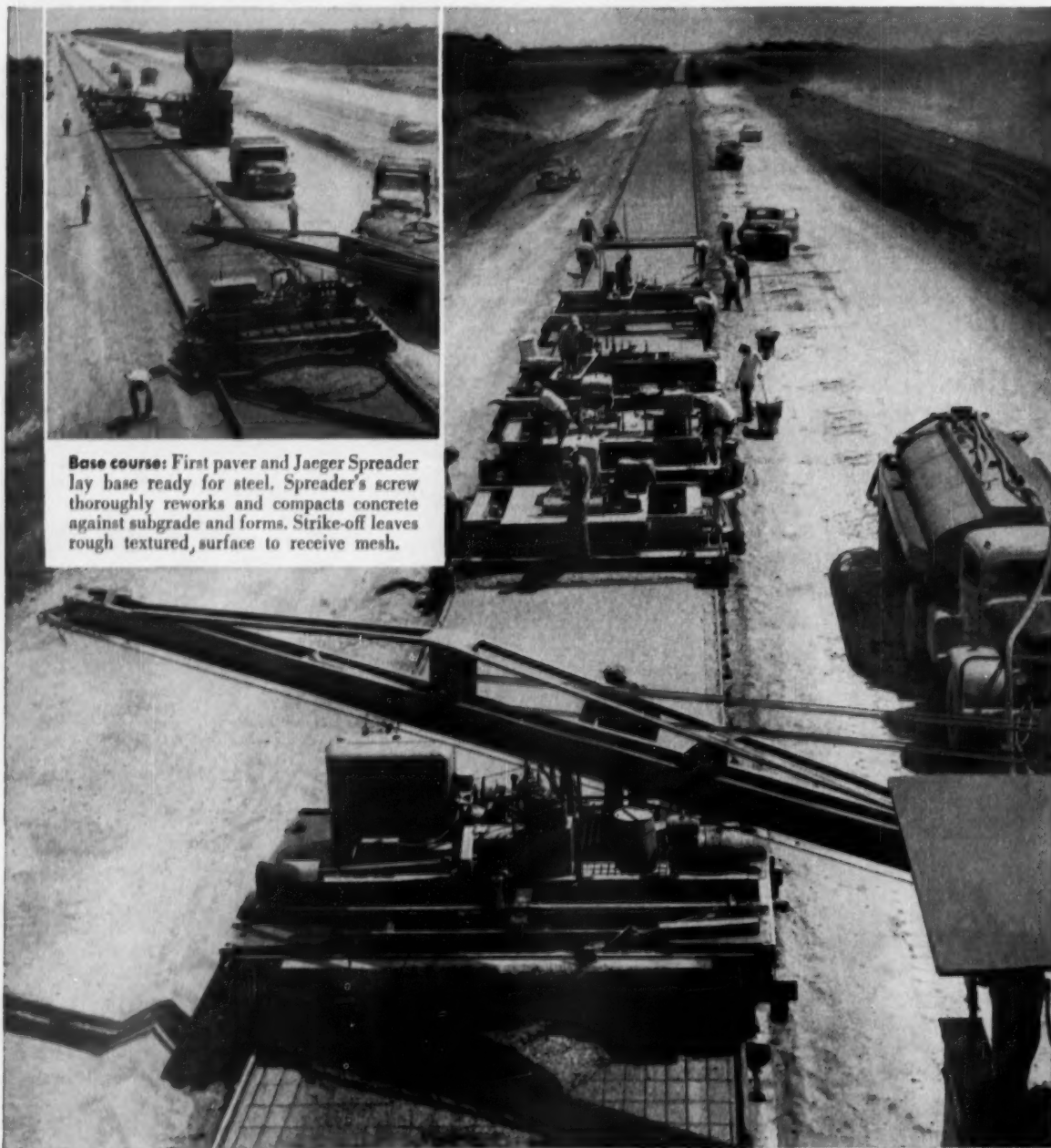
Other R/M products include: Industrial Rubber • Fan Belts • Radiator Hose • Brake Linings • Brake Blocks • Clutch Facings  
Asbestos Textiles • Packings • Engineered Plastic, and Sintered Metal Products • Bowling Balls



(Advertisement)

**Jaeger Spreaders, Finishers help set the Ohio Turnpike record**

**7280 ft. of 12 ft. slab in 13-hour day**



**Base course:** First paver and Jaeger Spreader lay base ready for steel. Spreader's screw thoroughly reworks and compacts concrete against subgrade and forms. Strike-off leaves rough textured surface to receive mesh.

This Ohio Turnpike record, by V. N. Holderman & Sons, required perfect organization, scheduling and teamwork. Good equipment helped, too. On top course, for example, the oscillating screed of the Jaeger Spreader accurately metered the

concrete between paver and finishing machines. In addition, both Jaeger Finishers were equipped with rear screeds diagonally adjustable for any pitch or super-elevation of the slab. For more data, see your Jaeger dealer or ask for catalog.

### **THE JAEGER MACHINE COMPANY**

**800 Dublin Avenue, Columbus 16, Ohio**

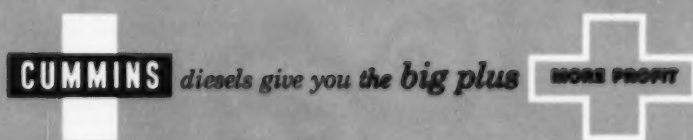
**AIR COMPRESSORS • LOADERS • PUMPS • CONCRETE MIXERS • TRUCK MIXERS**

Use construction equipment?



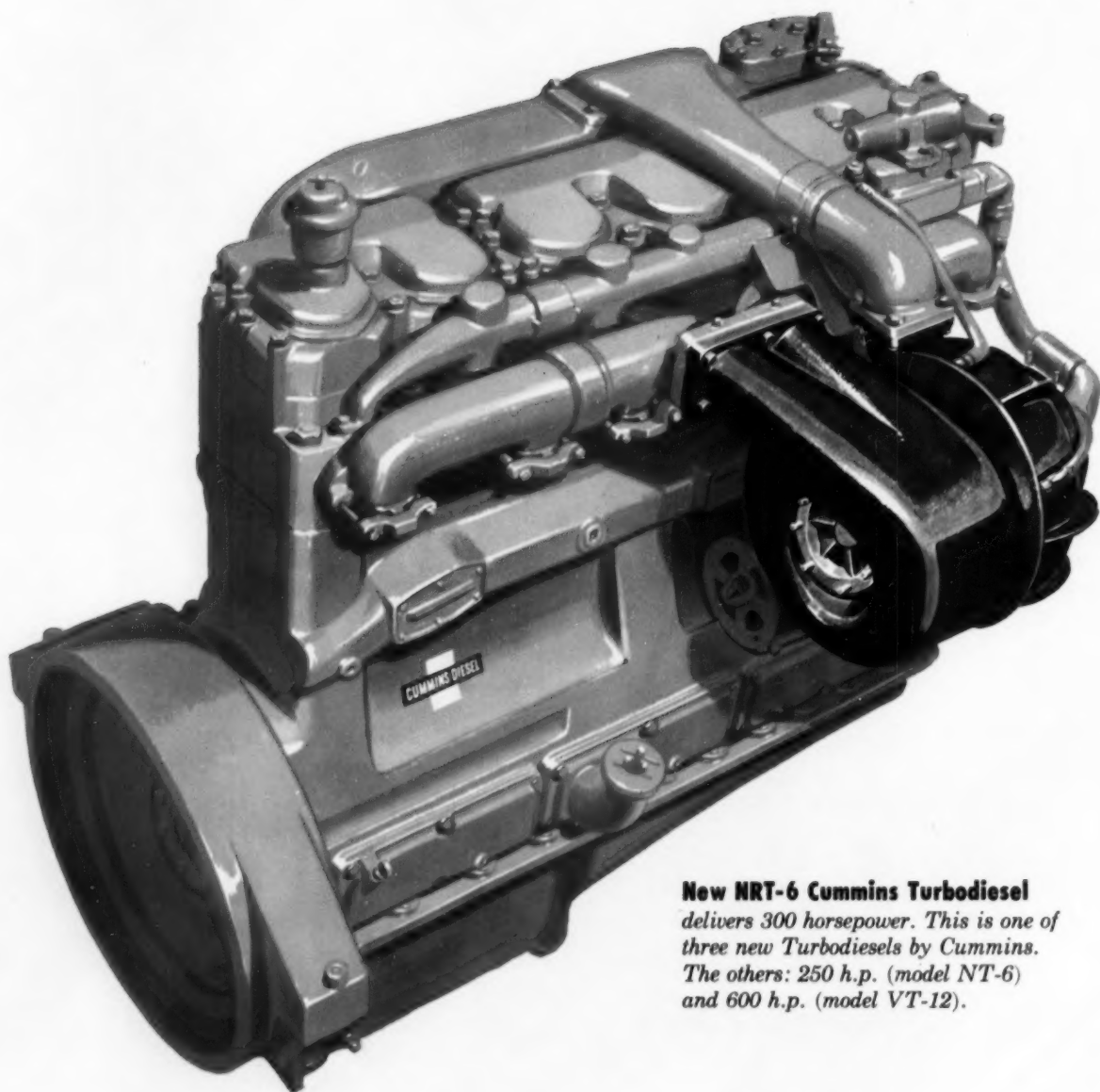
... now you can

# STANDARDIZE ON CUMMINS



**CUMMINS**

**diesels deliver**



**New NRT-6 Cummins Turbodiesel**  
*delivers 300 horsepower. This is one of  
three new Turbodiesels by Cummins.  
The others: 250 h.p. (model NT-6)  
and 600 h.p. (model VT-12).*

# features you need.... profits you want

**1** **Exclusive PT fuel system** now standard on all Cummins Diesels. Easier to understand, simpler to service than any gasoline system or any other diesel fuel system.

Drastically reduces fuel system maintenance costs. Eliminates fuel racks, check valves, injection valves, timing adjustments.

**2** **Cummins exclusive injectors**, open-type combustion chambers, and 4-cycle operation give highest on-the-job efficiency . . . and maintain it throughout operating range.

With Cummins Diesels, you can cut fuel costs from \$200 to \$500 or even more for every thousand hours of operation (compared with other diesel engines).

**3** **Continuing research**, exacting engineering standards, and strict quality control assure product uniformity and high-quality, rugged heavy-duty design.

You get more operating hours between overhauls, less in-between maintenance and less unscheduled downtime when you use Cummins Diesels.

**4** **Twenty-four** basic Cummins Diesels of 60 to 600 h.p. provide a wide selection of power. There are over 150 models—plus a wide variety of accessories—to match every individual job.

By matching power to your job you avoid the possibility of excessive maintenance and fuel costs resulting from under-powering . . . excessive initial costs inherent in over-powering.

**5** **Standardization** of internal parts. Bearings, pistons, crankshafts and other parts are interchangeable for many models.

Reduced inventories and greater parts economy are made possible by this standardization. You get lower over-all maintenance costs.

**6** **Nationwide** service and parts supply. Cummins Distributors carry all parts necessary to keep your engines running in top form . . . have factory-trained experts available to give immediate service.

Service and parts are available in nearly 200 locations in the United States and Canada and in over 100 export locations—help cut on-the-job delays.

Cummins Diesels are available in the leading makes of construction machinery. On the following pages are shown the makes of equipment in which you can obtain the advantages of Cummins Diesel power.

Before you place an order for new equipment, make sure you're getting lowest fuel costs, lowest maintenance costs, minimum downtime, longest life. Specify Cummins and be sure you get all these diesel advantages.

CUMMINS DIESELS

give you the big plus





# CUMMINS

## diesels now available



**Autocar** AUTOCAR ready-mix truck. One of many Autocars in which you get Cummins Diesels as standard equipment.



**KW** KENWORTH 24-ton end-dump truck. One of many Kenworth models in which Cummins Diesels are standard.



**FWD** FOUR WHEEL DRIVE high-way maintenance truck with snow plow. One of two FWD's available with Cummins.



**Dart** DART 55-ton end-dump. Ten other Darts available with Cummins power, including an 18-ton underground unit.



**E** EUCLID 50-ton end-dump truck. One of many Euclid dumps and coal haulers that can be powered by Cummins.



**Hendrickson** HENDRICKSON 40-ton dump truck. One of twelve Hendricksons available with Cummins Diesels.



**IH** IH 35-ton quarry truck with twin side-dump. There are 17 other IH trucks you can buy equipped with Cummins.



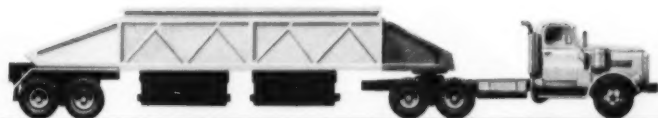
**Mack** MACK 34-ton end-dump truck. One of fifteen different Mack models available with power by Cummins.



**Peterbilt** PETERBILT end-dump truck with side-dump trailer. One of 6 Peterbilt trucks in which Cummins power is standard.

in these famous-make

**TRUCKS**



COOK 30-ton bottom-dump truck. Cummins Diesels also available in end-dump and ready-mix units.



DIAMOND T 921 series tractor with low-boy trailer. Ten Diamond T models available with Cummins Diesel engines.



**OSHKOSH**

OSHKOSH trailer-type highway maintenance truck. Oshkosh makes 11 other trucks available with Cummins power.



**White**

WHITE 35-ton bottom-dump gravel hauler. One of thirty-four White-built trucks available with Cummins Diesels.

For over twenty years, major contractors have picked Cummins Diesels as the top engines for heavy-duty off-highway trucks. Today, Cummins continues to be the first choice for the rough, tough haulage jobs.

Dependable day-in, day-out performance; ability to get more work done; long life; and lowest possible fuel and maintenance costs are a few of the reasons for this leadership.

In addition to heavy-duty earth haulers, Cummins Diesels are also available in smaller trucks used as dumpers or ready-mix units and in similar over-the-highway service.

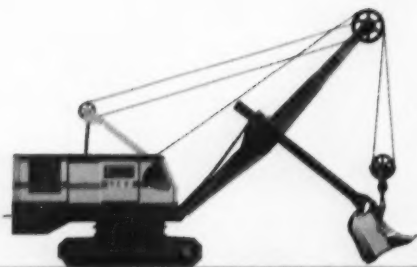
When you buy new heavy-duty or medium heavy-duty construction trucks, get maximum efficiency . . . top profit. Specify Cummins.

CUMMINS DIESELS  
give you the big plus



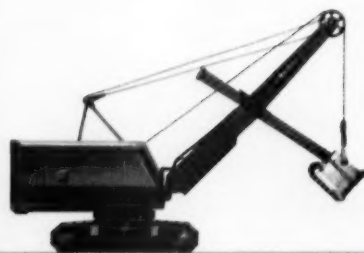
# CUMMINS

## diesels now available

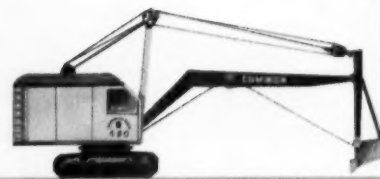


**BUCYRUS  
ERIE**

**BUCYRUS - ERIE** 2 1/4-yard shovel. Cummins Diesels are also available in Bucyrus' 1 1/2- and 4-yard shovels.



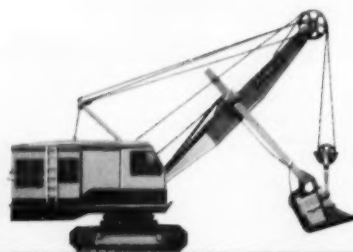
**LINK-BELT SPEEDER** 2 1/2-yard shovel. Link-Belt Speeder also makes two draglines available with Cummins.



**DOMINION** backhoe. This unit, convertible to other front-end attachments, is available Cummins powered.



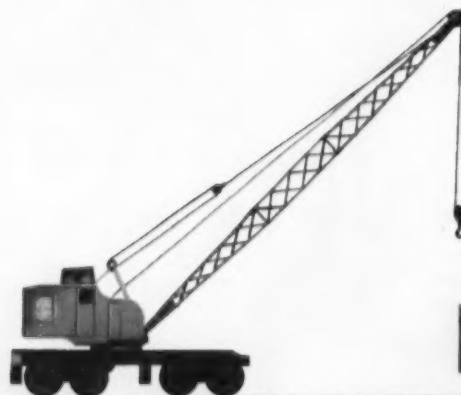
**AMERICAN** crawler crane. Cummins are available in the 700 series of American shovels, backhoes, and cranes.



**KOEHRING** 2 1/2-yard shovel. A 275 h.p. Cummins torque converter package is available in this unit.



**MANITOWOC** 5-yard dragline. Manitowoc also powers five shovels (1- to 5-yard) and a crane with Cummins Diesels.



**INDUSTRIAL BROWN-HOIST** rubber-tired diesel-electric crane. Available in capacities from 25 to 60 tons.



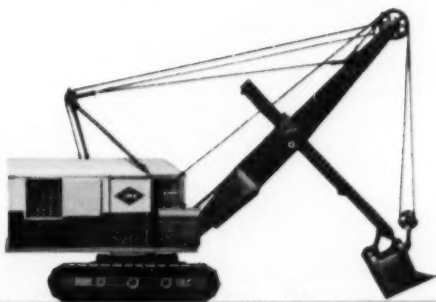
**BAY CITY**

**BAY CITY** clamshell. Bay City's crane and 1 1/2-yard shovel also feature Cummins Diesels as standard equipment.

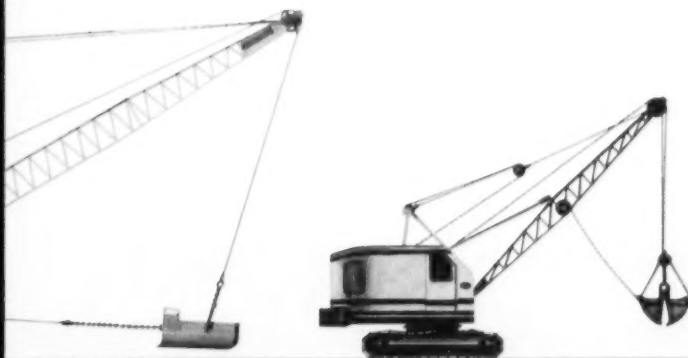


**MARION** dragline. One of three draglines, six shovels (1 1/4- to 4-yard), two cranes—available with Cummins power.

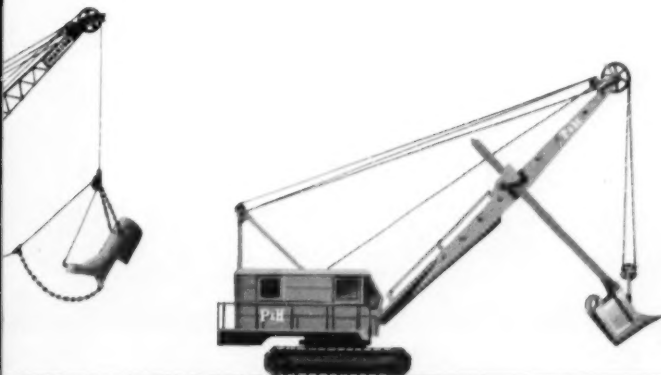
in these famous-make



LIMA 2 1/2-yard shovel. Eight different Lima models (3/4- to 4-yard) can be bought equipped with Cummins Diesels.



INSLEY 1-yard clamshell. Also as shovel, hoe, dragline, crane: on crawler, truck, or self-propelled mounting.



P&H model 1055 3 1/2-yard shovel. Also available as a dragline, crane and clamshell. All available Cummins powered.

## SHOVELS DRAGLINES CRANES

Cummins Diesels in your shovels, draglines, or cranes assure you of longer equipment life, lower maintenance and fuel costs . . . performance you can count on. That's why leading manufacturers make their 3/4- to 5 1/2-yard shovels available with Cummins Diesels.

Cummins engines for mechanical drive shovels have been engineered to include the best torque characteristics, controls, and accessories for each model of machine.

To assure best performance and lowest operating cost, torque converter units have been specially designed by Cummins to fit individual shovel models. Shovels equipped with Cummins torque converter units maintain power without lugging, stalling, or overspeeding. On the job, they have increased production by 30% to 50%. The hydraulic coupling effect of torque converter units also reduces maintenance costs on cables and machinery by absorbing shock loads.

CUMMINS DIESELS  
give you the big plus

**MORE PROFIT**

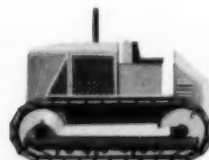


# CUMMINS

## diesels now available



INTERNATIONAL HAR-  
VESTER model 75 Pay-  
scraper. Model 55 Payscraper  
is also Cummins powered.



EIMCO model 105 crawler  
tractor. Eimco also makes a  
bulldozer and tractor-loader  
available with Cummins.



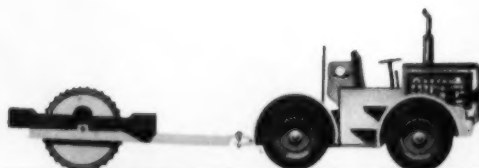
EUCLID loader. This Euclid  
belt-conveyor can be bought  
powered by a Cummins Diesel.



ADAMS motor grader. Adams  
division of Le Tourneau—  
Westinghouse offers its model  
660 powered by Cummins.



M-R-S four-wheel tractor.  
This is one of four M-R-S  
tractors available with Cum-  
mins Diesels.



WAGNER 4-wheel drive  
tractor with sheepfoot. One  
of two rubber-tired tractors  
available Cummins powered.

in these famous-make



**EUCLID** 18-yard twin-engine scraper. One of three Euclid scrapers you can buy powered by Cummins.



**LE TOURNEAU-WESTINGHOUSE** "B" Tournapull. Cummins also powers the "C" and a Tournatractor.



**WOOLDRIDGE** 18-yard "Terra Cobra" scraper. Seven "Terra Cobra" scrapers and dumpers use Cummins power.

## **TRACTORS GRADERS SCRAPERS LOADERS**

Cummins Diesels give you the high torque needed for 'dozing, pushing, loading... fast acceleration... sustained high speeds on the haul. On construction jobs, you will find Cummins power in the rubber-tired tractors that pull the biggest scrapers—push the biggest 'dozer blades.

A 140 h.p. Cummins Diesel now is standard in the world's most powerful motor grader. This machine does your grading and ditching jobs faster, better and more economically.

You now can get Cummins power in crawler tractors, too. Driving through a torque converter, a new 120 h.p. Cummins gives these tractors greater drawbar pull than all other tractors of their class—makes them outpull and outperform most tractors of heavier classifications.

**CUMMINS DIESELS**

give you the big plus

**MORE PROFIT**

# CUMMINS

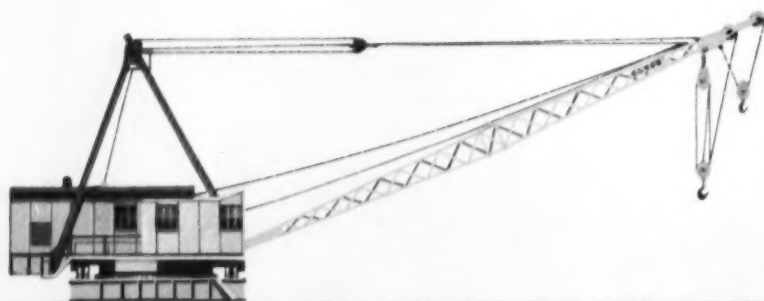
## diesels now available in



**CEDARAPIDS** "Commander" rock crusher and screening plant. Available powered by a Cummins 300 h.p. engine.



**KOEHRING 34-E** paver. It can be bought powered by a Cummins 150 h.p. Diesel.

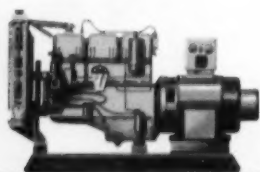


**CLYDE Whirley.** Four sizes, from 60,000 lbs. at 25' radius to 166,000 lbs. at 40' radius. All use Cummins.

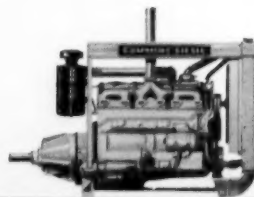


**REICH** REICH rear-mount drilling rig (on IH truck). Cummins 150 h.p. engine powers both the truck and the drill.

**Standardize on Cummins for generators and power units, too!**



**GENERATOR UNITS.** Cummins makes lightweight, compact generator units—30 to 250 kw—adaptable to either portable or stationary applications. Simplicity of design minimizes installation expense. The low fuel consumption and small costs of maintaining Cummins Diesels are the reasons why power users have found that Cummins generator units give them the lowest cost per kilowatt hour.



**POWER UNITS.** Cummins makes a complete line of rugged, heavy-duty industrial engines—60 to 600 h.p.—adaptable to an extremely wide range of applications, both portable and stationary. These engines can be furnished as straight industrial units (fan to flywheel) . . . as complete power units with radiator cooling, hood, and clutch power take-off . . . or with a wide variety of accessories.

in these famous-make



**BUFFALO - SPRINGFIELD**  
"Kompactor." Available powered by a Cummins 125 h.p. Diesel engine.



**AMERICAN HOIST.** American hoists ranging from 14,000 to 35,000 lb. capacity utilize Cummins Diesel power.



**WORTHINGTON-RANSOME 34-E paver.** A 150 h.p. Cummins Diesel is standard in this machine.

## CRUSHERS HOISTS COMPACTORS PAVERS DRILLS

No matter what phase of construction work you specialize in . . . no matter what type of equipment you use most . . . you can be sure of maximum efficiency, *more profit* when you standardize on Cummins Diesels. There's no surer way of increasing production . . . cutting costs.

The construction equipment shown on these pages is only a sample of the wide variety of units available with Cummins power. All incorporate the latest engineering advances to let you do more jobs faster, better, and cheaper.

For further information, contact your Cummins Distributor or your equipment dealer, or mail coupon today.

CUMMINS ENGINE COMPANY, INC.  
Columbus, Indiana

I am interested in finding out more about Cummins Diesel advantages.

- ☐ Send me, free of charge, your directory of manufacturers offering Cummins Diesels in their equipment.
- ☐ I want details on repowering my present equipment. Please have your representative call.

Name \_\_\_\_\_ Position \_\_\_\_\_

Company \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

CUMMINS DIESELS  
give you the big plus





# CUMMINS

## distributors serve you better, too!


*Cummins Distributors make up the largest exclusive diesel engine sales and service organization in the U. S. and Canada. They are able to give you expert advice and assistance when you specify power for your new equipment. They can also install Cummins Diesels in your present machines so that performance can be improved.*

*Cummins Distributors can give you the maintenance you want. No matter where your job is, you'll find a Cummins factory-type repair shop nearby, manned by trained mechanics to keep your equipment in top, trouble-free condition. In addition, Cummins Distributors have for years set up special service and parts availability on job sites to serve the needs of contractors.*

*And each distributor stocks a complete line of genuine Cummins replacement parts. This eliminates the need to tie up your own money in an expensive inventory.*



**Contact the Cummins Distributor in your area today. Get proof that standardizing on Cummins will give the big plus ...**



**MORE PROFIT**

### **CUMMINS ENGINE COMPANY, INC.**

Columbus, Indiana

Export: Cummins Diesel Export Corporation

Columbus, Indiana, U.S.A.

Cable: CUMDIEX

Printed in U.S.A.



Contract work on the Niagara River Remedial Project was directed by the district engineer of the Buffalo District, Corps of Engineers, U. S. Army.

**Wire Rope at Work**—Recently Norman H. McLain, Buffalo contractor, undertook the formidable task of diverting a portion of the swift Niagara River, just above the Falls. His was the job of exposing—temporarily—many acres of riverbed so that thousands of cubic yards of rock could be removed. Purpose: to create a more uniform distribution of water over Horseshoe Falls and thereby check the severe erosion at the center of the crest.

In constructing his diversion dam, McLain first erected a shield that was held in place by Bethlehem wire ropes, anchored upstream. In addition, to prevent lateral drift, a separate cable was run from the shield to a nearby point of land. This device, secured by the strong steel ropes, made it possible to construct the temporary dam, section by section, and thus assure successful completion of the project.

Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

*Mill depots and distributors from coast to coast stock Bethlehem rope for the following industries and numerous others:*  
CONSTRUCTION • MINING • PETROLEUM • EXCAVATING • QUARRYING • LOGGING • MANUFACTURING



(Advertisement)

# 5 WAYS TO MAKE MORE

## From The Multi-Billion Dollar Highway



**HIGH SPEEDS IN OREGON**—This Athey PR21 Trailer-Cat DW21 Tractor is working on rock-fill on an Oregon highway project. The PR21 takes on a 31-ton load of rock, hauls at speeds up to 26.6 MPH, dumps in an average of 20 seconds!



**60% TO 80% SAVINGS**—That's what the Athey Portable Breaker with Force-Feeder Loader does on road surfacing reclamation projects. Working with a Cat Motor Grader, this Athey Portable Breaker helps rebuild roads in the State of Washington.



**DUMP ON-THE-RUN!**—Near Oglesby, Illinois, this 22 cu. yd. Athey PD20 Trailer, and Cat DW20, dumps with the tractor moving along in third gear. There are no stops, no turns, no shifting—just steady, profitable production as the PD20 dumps on-the-go!

# MONEY...

## Program

As America's greatest highway building program gets into action, you can put yourself in the picture for bigger profits.

Take a look at these teammates. Match your work with time-tested, profit-proven Athey and Caterpillar machines! You'll gain the dependability and lower costs that spell more profit.

They're backed by the combined engineering talent of the leaders in material transportation and loading — Athey and Caterpillar.

Experience of more than 82 years, is behind Athey and Cat equipment.

### TIE-IN WITH TOP FEATURES

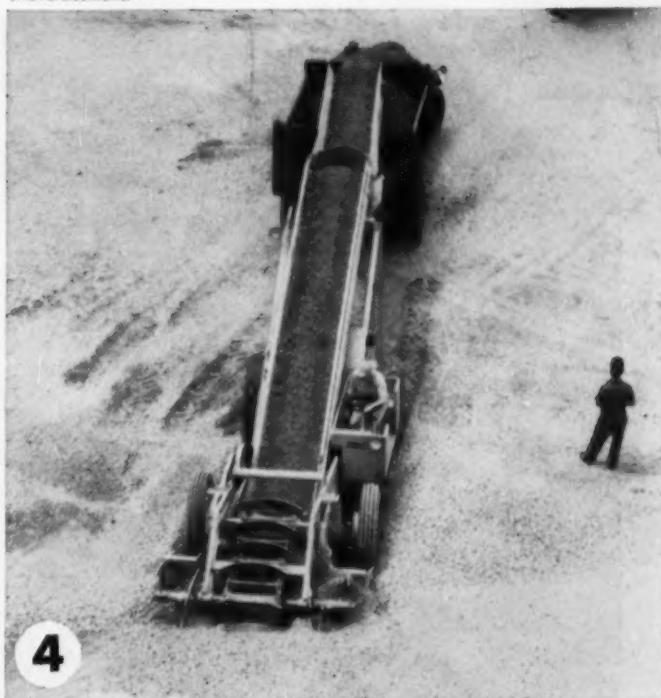
Look at the design features—features that give you more yards moved every hour . . . features that mean more operating hours per machine . . . features that assure top profits per job!

The highway jobs are here! The machines are available. Get in on your share of the big projects ahead! Call your Athey-Caterpillar dealer and ask for a free job analysis that can help you earn *more* money. Or you can write us for this free information—do it *now*!

### ATHEY PRODUCTS CORPORATION

5631 West 65th Street  
Chicago 38, Illinois

(Advertisement)



**STOCKPILE LOADING AT 3000 TONS PER DAY!** The Athey HiLoader puts mass production into stockpile loading—handling as much as 8 to 10 cu. yds. each minute. This HiLoader is loading 5 tons of crushed slag per minute at Charleston, S. C.



**FAST, BIG CAPACITY WINDROW LOADING!** The Athey 7-11 Force-Feed Loader is a teammate of Cat Diesel Motor Graders. It picks up windrowed materials—up to 8-10 cu. yds. a minute. Oil mix and other surfacing materials can be handled by this many-purpose road-building tool. This 7-11 Loader is working in Indiana.





# Now-Blue Chip GMC's



Today—GMC proudly presents the new generation of trucks—its new Blue Chip line. It offers the biggest selection of power-transmission-axle-chassis combinations ever engineered for construction work. You can choose from:

**11 GREAT NEW ENGINES**—6 power-hiked gasoline engines—3 improved 2-cycle Diesels—span a 125 through 230 h.p. range. And GMC is introducing 2 great new V8's—rated at 155 and 175 h.p.

**TRUCK HYDRA-MATIC\* IN 5 SIZES**—Now you can take advantage of Hydra-Matic economies on *any* job up to 46,000 GVW. 65 new Blue Chip GMC models have this

built-in self-protection against truck-killing strains. And all heavy-duty manual-shift models have bigger clutches.

**3 COMFORTABLE NEW CABS**—There's wide-horizon visibility through new raked-back windshields on redesigned conventional cabs up through 46,000 GVW. There are 18 popular "Stripaway" c.o.e.'s. And GMC's new dual-purpose cab—blanketing the 16,000-29,000 GVW range—gives you a c.o.e.'s compactness with all the easy servicing and low step of a conventional truck.

**HUNDREDS OF NEW FRAME AND AXLE COMBINATIONS**—Frames on all models are up to 11% stronger. Stress-relieving

Model MW630-50 (46,000 GVW)  
pictured at right is Hydra-Matic  
equipped — has power-hiked 225  
h.p. gasoline engine



Now—3-Axle  
Blue Chip GMC's  
up to 59,000  
GVW!

## *in the widest choice of trucks ever offered the construction field*

reinforcements for severe service are now *factory-installed*\*\* — right on the production lines. There are six-wheelers and ten-wheelers in all weight classes. And there are larger capacity axles — front and rear — on most GMC's.

**MANY EXTRA PAYLOAD AND MANEUVERABILITY FEATURES** — Better weight distribution gives extra payload capacity throughout the line. Turning radii are shorter — especially on dual-

purpose cab models with their set-back front axles. And Safety Power Steering\*\* is optional on all Blue Chip GMC's from 2 tons up.

\* \* \*

And prices? Competitive trucks can't touch these Blue Chip values. See your GMC dealer — and see for yourself!

*\*Hydra-Matic standard on many GMC models; optional at extra cost on some others*

*\*\*Optional at extra cost*



Your Key to Blue Chip Value!

**GMC TRUCK & COACH—A General Motors Division**

**PICTURE  
OF THE  
MONTH**

CONSTRUCTION  
METHODS AND EQUIPMENT



## Cleanup Hitter

AS LONG-ARMED UTILITY MEMBER of the hard-hitting team fielded by Mittry & Sons, Gardena, Calif. on the Bradbury and Maddock Debris Basins in the hills above Duarte, Calif., a 22½-ton Lorain Moto-Crane uses a ¾-yd McCaffrey dragline bucket on a 40-ft boom to do cleanup work and precise sloping. The crane also was used to pour concrete

for the spillways. This project of the Los Angeles Flood Control District to catch dirt, debris and trees washed down by flash floods, consists of two earth-filled dams, one 350 ft long by 25 ft high, and the other 600 ft long by 40 ft high. Decomposed granite and sandy gravel amounting to 200,000 cu yd had to be handled to build the dams and channels.

Pumpcrete® is located in the alley where it is accessible to truck mixers and away from traffic. Concrete is delivered to third floor of "H" shaped building by pipeline, 160 feet from alley. Note pipeline set in place for pour on other half of floor.



Small crew distributes and vibrates concrete in place. Note absence of cumbersome runways and buggies. Pumpcrete placed approximately 2200 yards of concrete for the building, averaging 15-18 yards per hour.

## Reports: "nice going..." with **PUMPCRETE!**

concrete by pipeline saves time  
and money on new Chicago building

By eliminating conventional concrete-handling equipment—buggies, runways, lifts—contractor for this four-story "H" shaped structure on Chicago's North Side was able to place concrete at less cost, faster and better with Pumpcrete—the pump that delivers concrete by pipeline!

Construction supervisor Harold Arnold of Sumner Sollitt Company, Chicago, reported Pumpcrete eliminated expensive handling equipment. Iron workers, electricians and other trades were able to work on schedule, undisturbed by placing operations—"it's nice going with Pumpcrete."

The single Model 160 Pumpcrete was located in the alley to the rear of the building... out of the way of street traffic and easily accessible to truck mixers. This arrangement relieved traffic congestion and expedited over-all job progress.

Investigate the job-speeding, cost-cutting advantages of Pumpcrete on your next job. See your local Rex Distributor or write Chain Belt Company, 4664 West Greenfield Ave., Milwaukee 1, Wisconsin.



**CHAIN BELT COMPANY**



## ON ROAD CONSTRUCTION IN PENNSYLVANIA . . .



## "NYLON CORDS HAVE CUT OUR ROAD



**SAYS JAMES R. BAZLEY,**

*Vice-President, J. Robert Bazley, Inc., Pottsville, Pennsylvania*

"Road delays due to impact breaks were our biggest problem: We roll equipment on road construction and stripping jobs in central and eastern Pennsylvania, where tires get unusually hard wear. Under average loads of 20 to 22 tons, we pound over dirt, gravel, rock and coal roads in temperatures from 10° below zero to over 100°. On our off-the-highway operations impact breaks were the single most expensive item in our tire bills. The average cost of a road delay was \$50.

"Then we became one of the first to try nylon cord tires. We found nylons gave us two recaps where we couldn't count on one with ordinary tires. That means that after we get 3,000 hours of service on original tread, we get 1,500

**YOU'LL FIND NYLON IN PASSENGER CAR TIRES, TOO!** Shock-absorbing nylon cords mean extra protection against blowouts . . . greater safety on any road.



## DELAYS DUE TO TIRE TROUBLE 74%”

more hours from each of two recaps—or a total of 6,000 work hours. Our records show that nylon cord tires have reduced road delays due to tire trouble 74%.”

For ten years Du Pont and leading tire manufacturers have been working together to perfect nylon cord truck tires. Now actual road experience proves nylon to be the best protection yet against tire failure. Truck users’ reports show nylon cord tires mean fewer road delays, more mileage, more recaps—lower cost per mile.

Nylon has greater tensile strength, flex and abrasion resistance than any other cord used in tires. Nylon virtually ends cord ruptures caused by bruise-breaks. Moisture seeping through cuts doesn’t damage nylon. Nylon can take the hottest road temperatures you’ll ever encounter in normal operations.

Prove to yourself that nylon cord truck tires give substantially lower cost per mile. Ask your dealer about nylon cord truck tires today. (Du Pont makes nylon yarns, does not produce tires.)

**DU PONT NYLON  
FOR TIRE CORD**



REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING  
... THROUGH CHEMISTRY

FREE BOOKLET on nylon tires—write for your copy. Textile Fibers Dept., Room 11506, E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Del.

## Construction News in Pictures...



**PROVES TOP HAND** Helping the Berea Congregational Church celebrate its 100th Anniversary with a face-lifting, Ed Painton of Cleveland, Ohio, uses 120 ft of boom on Lorain rig to set 4-ton steeple.



**PIONEER ROADBUILDER** — A Caterpillar diesel D8 tractor equipped with an 85 bulldozer is building an access road to the damsite on the south fork of the Shokomish River, Wash., preparatory to explorations for the City of Tacoma's estimated \$14,000,000 hydro-electric development of the Cushman Reservoir drainage area.



**MIGHTY MITE** — Replacing a 40-ton locomotive crane, this Clark-Ross fork truck has been performing yeoman service as a lumber handler. It's equipped with swivel-mounted, ice-tong-like hooks fabricated from steel scraps, which are chained to the load stabilizer and can be attached or removed in a few seconds. Previous methods using locomotive crane and slings required an operator, a brakeman and four riggers.



**SKIDDING CUTS COSTS** — When the widening of Marsalis Ave. required the removal of large rock slabs, J. C. Watson, Dallas, Tex., eliminated the cost of blasting and shovel-handling

of the material off the site by lashing the rocks to partly loaded scrapers and dragging them more than 1/2 mi to a building site where they were used for creek stabilization. (More photos on page 45)



# In every size, Link-Belt Speeder offers more speed, stamina, power, work-time!

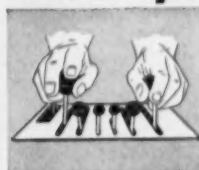


STONE WORK GOES FASTER with LS-98 on the job. Rig is equipped with a 100 ft. boom and 30 ft. jib to speed steeple construction. Speed-o-Matic controls enable operator to lift and reach with pinpoint accuracy.

## ***You're ahead on every job—***

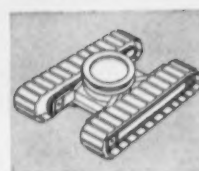
because Link-Belt Speeder is *years ahead* of the shovel-crane industry. Only Link-Belt Speeder offers you Speed-o-Matic's true power hydraulic control and so many other outstanding design and construction advantages. For facts on every machine in the ½ to 3-yard, 10 to 60-ton work range, contact your Link-Belt Speeder distributor. Link-Belt Speeder Corp., Cedar Rapids, Ia.

## ***More speed—***



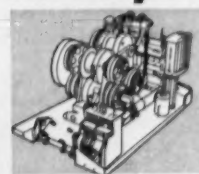
Speed-o-Matic, the true power-hydraulic control—smooth, positive response—perfect "feel" for speed with accuracy. Engineered to consider the human factor, greatly reduces operator fatigue.

## ***More stamina—***



A Link-Belt Speeder withstands continuous heavy-duty, high-speed operation. For proof, compare similar sized rigs with and without counterweights. Link-Belt Speeders have more "live weight", more strength built into every component.

## ***More power—***



Get more line pull, more digging power, lower fuel costs. Link-Belt Speeder design calls for precision-machining, anti-friction bearings and splined shafts at every point that helps transmit rated hp into usable hp.

## ***More work-time—***



A bigger percentage of shift is spent in actual "work-time." By minimizing operator fatigue, Speed-o-Matic boosts output up to 25%; also eliminates frequent on-the-job clutch adjustments and maintenance.

Visit your Link-Belt Speeder distributor and see these great machines first hand. A demonstration can be arranged at your convenience to prove that Link-Belt Speeder gives you most for your money.

## **LINK-BELT SPEEDER**

*Builders of a complete line of crawler and rubber-tired shovel-crane*

12,799



what  
**POWER**  
means on a small  
**BLACK TOP PAVER!**



**H**ere is the Adnun Jr. starting the fourth course from the curb on a parking lot. On each course the Adnun put itself in position under its own power, ready for the truck. Truck time was reduced, back breaking labor was eliminated and the cost of the job was less.

The Adnun Jr. is the only tow-type bituminous paver that brings you the advantages of engine power for moving the empty paver on the job. In close quarter work, up against garage doors, inside of walls, close to buildings, in fenced playfields and similar work, Adnun power is an invaluable time saver and cost reducer. It eliminates much hand work, cuts down on manpower and makes possible a better job.

If you are bidding on non-highway specification work, the Adnun Jr. will permit better bids and give longer, trouble-free service. Ask for details on this high-quality tow-type rig.

- Maneuvers for new location under power.
- Demountable Tow Hitch eliminates need for trailer.
- Simple design.
- Oscillating Screed assures tight longitudinal joints.
- Dual controls on either side.
- Breaker Bar gives better compaction.
- Anti-Friction Bearings throughout.
- Continuous Course Correction for more accurate leveling.

**BLAW-KNOX  
COMPANY**  
CONSTRUCTION EQUIPMENT DIVISION

1910 State Street  
Munda, New York

**BLAW-KNOX**

**ADNUN JR**  
**MODEL 8**

**BLACK TOP PAVER**

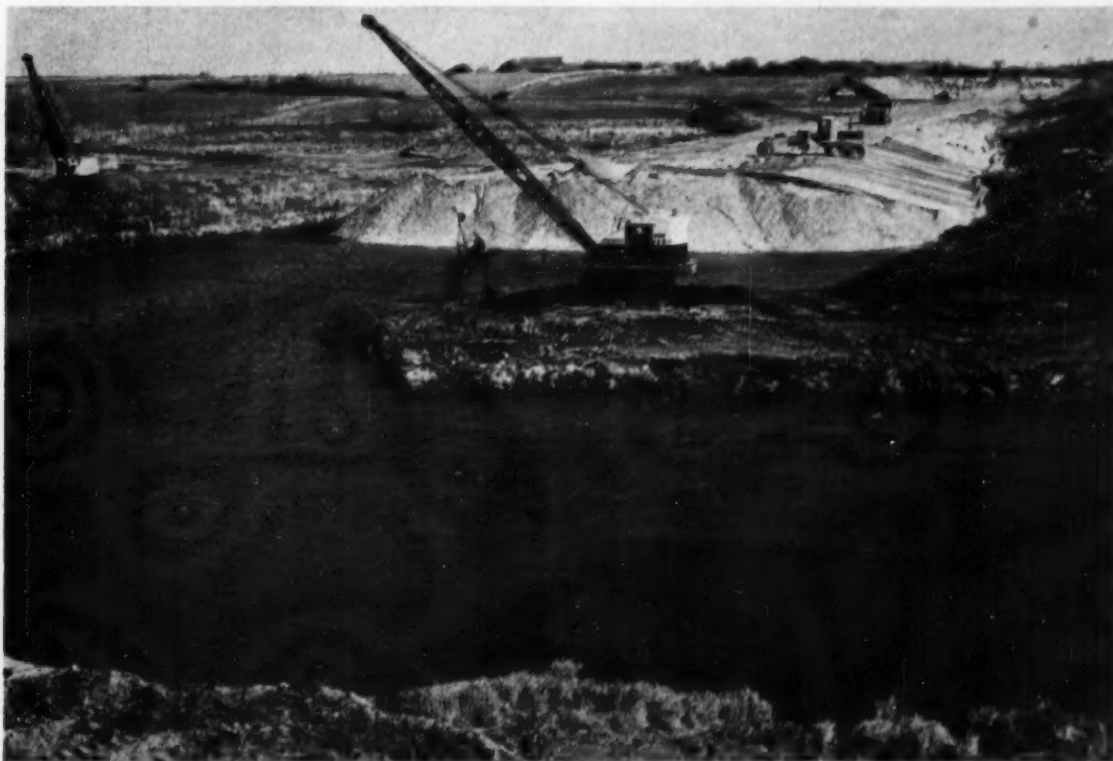
## Construction News in Pictures... Continued



**SELF-LOADER**— Heavy pump is eased to the ground by a dual-purpose pipe-line truck developed by the Corps of Engineers' Research and Development Laboratories, Fort Belvoir, Va. Winch and "rolling tailboard" make handling of heavy loads practically a one-man operation. Lowered poles along side of flatbed raise quickly to become a rear- or side-mounted A-frame. All this is accomplished on a standard 2½-ton 6x6 military truck, which also has fittings to receive cargo sides, roof bows and tarpaulin.



**PLASTIC MARINE PIPE** — Fresh water pipe for Navy vessels in San Diego Bay is a 4-in., 2,500-ft plastic line laid under water. A tug pulled it into place through a brass end fitting. Pipe sections were coupled on, as distance increased.

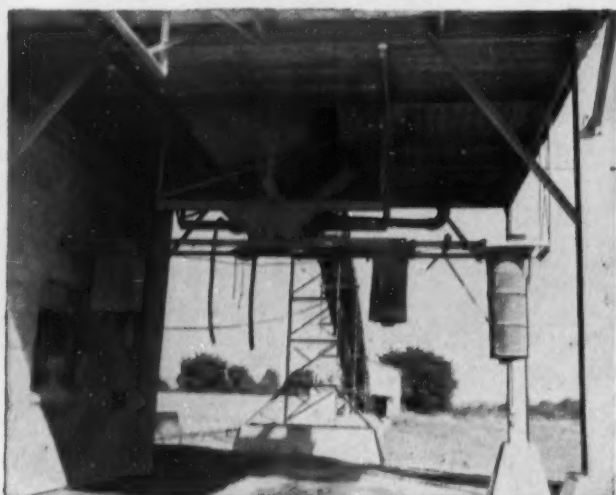


**CUT AND FILL**—Looks like an earth dike under construction, but this is going to be a new state highway near Melrose, Minn. Two 22-B Bucyrus-Erie draglines are removing from 3 to 12 ft of

muck and peat for right-of-way through a swamp. Earth fill is being placed in background. Contractor is J.&L. Construction Co., Long Prairie, Minn.

# Why Batch Away **YOUR**

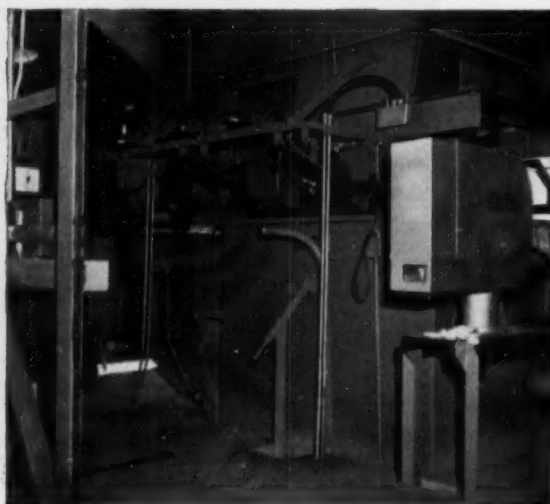
*Midwest Supply Company finds New Heltzel Automatic Cement Plant with Batchmaster Batcher has perfect record in dispensing 40,000 barrels -*



Three loading hoppers on a rolling track for three separate discharging heights, including a dry batch collecting hopper for dispensing to batch boxes. Water is introduced simultaneously.



A single operator controls entire operation of filling plant, measuring and dispensing. He can weigh all materials, including water and discharge  $5\frac{1}{2}$  yards of concrete in 30 seconds.



Compact Batchmaster Batcher for both aggregate and cement. Cement Batcher is sealed. Aggregate Batcher features air-operated clamshell gates. Sealed weighing apparatus has automatic recording device.



# PROFITS?



Completely designed and built by Heltzel, this combination plant represents the most efficient concrete batching equipment available today.

Roadbuilder or blockmaker—transit or central mix if you use cement and/or aggregate batching plants you know the value of a fast, accurate operation. That's why this story may interest you—for it's another report of how Heltzel superior batching equipment saved the profits for another plant operator.

Boardman Supply Co., Youngstown, O., checked the record after batching some 44,000 bbls. of cement through their Heltzel Combination Plant. The record: a 15 bbl. plus—the result the average cement producers normally provide in their shipments. What makes this story even more amazing is the fact that Boardman was batching small amounts (600 lb. average) on a 5000 lb. scale.

As for speed, Boardman can weigh out  $5\frac{1}{2}$  yards of dry material, and the necessary water in 14 seconds—discharge it in 17 seconds. As for handling savings, they can put together all materials necessary for batching a yard of concrete for less than four and one-half cents.

Heltzel designed and built the entire operation to give Boardman the most efficient set-up possible. It consists of four 65-ton aggregate storage bins at grade level. The bins are equipped with interlocked air-operated gates to prevent the mingling of materials. The bin discharges the aggregates onto a Heltzel Belt Feeder which carries them to a Heltzel Inclined Con-

veyer, which transports them to the top of the plant. Here they are distributed by a motorized turnhead into the proper compartment. Bin signals indicate aggregate level in the plant.

A cement hopper feeds into a Heltzel Screw Conveyor. A Heltzel Elevator carries the cement to the top of the plant where it is discharged either into the sealed cement compartment or into a recirculator. Cement is weighed and discharged through a sealed Heltzel Batchmaster. All operations are automatically controlled from a single station that requires but one operator.

This story can be duplicated whether your needs are for a single or multiple material plant, stationary or portable, for yard or highway use. Why not make sure you have the fastest, most accurate equipment possible. Don't chance losing time and profits with inferior equipment. Specify Batchmaster Plants by Heltzel.

**HELTZEL**  
*Batchmaster*  
**BATCHING PLANTS**

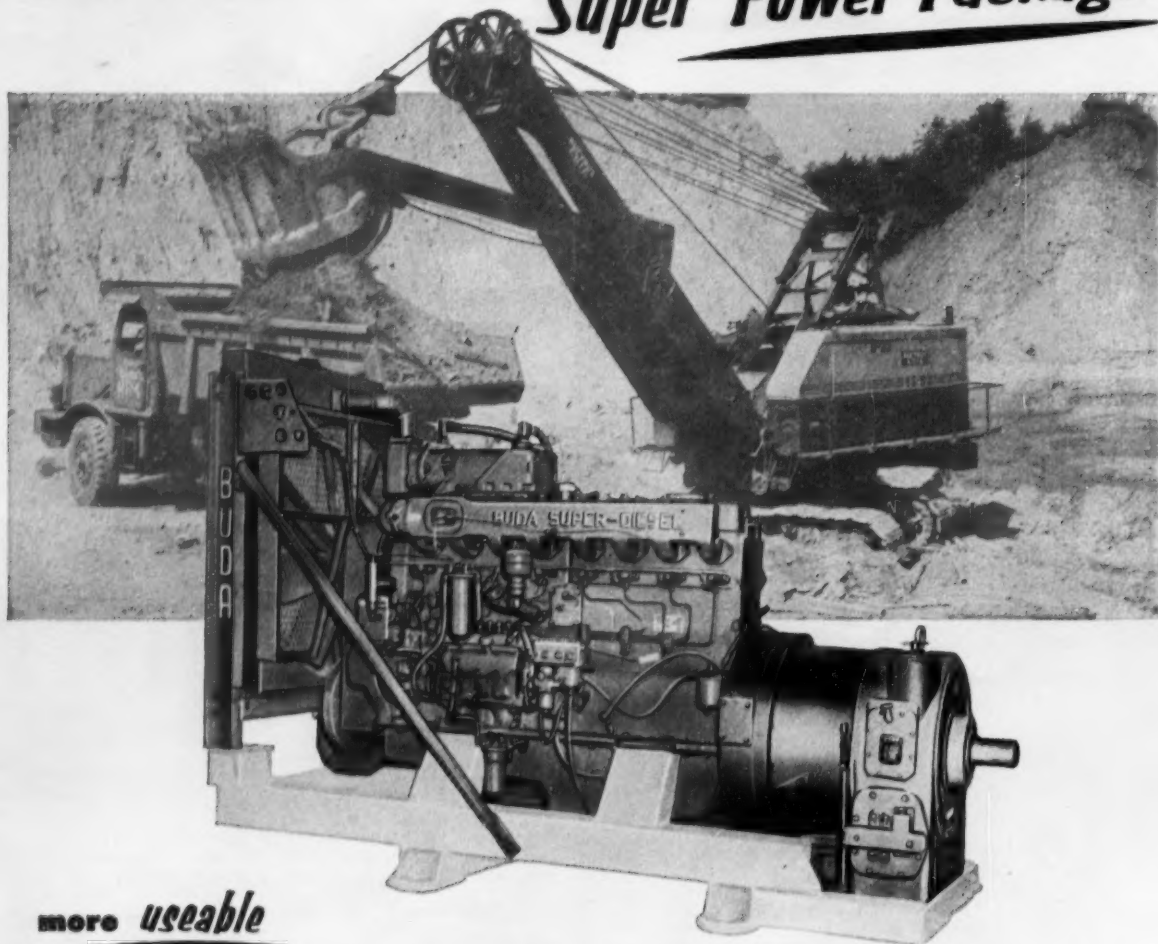
17000 THOMAS ROAD



**THE HELTZEL STEEL FORM & IRON CO., WARREN, O.**



# Buda Diesel Torque-Converter Super "Power Package"



**more useable**

**horsepower and torque . . . . for faster, smoother shovel operation**

The great new Buda 8DAS-1290 Supercharged Diesel Torque Converter Power Unit is engineered for the continuous, high lugging service shovel work demands. It's shovel power that packs a smooth punch.

Because the Buda Diesel Torque Converter Unit automatically matches its tremendous power and wide range of torque to speed hoisting, swinging and traveling operations, shovels and cranes do more work.

Downtime and maintenance costs are minimized too — transmissions, clutches, brakes, cable and drums stay in service longer, because the smooth, cushioned fluid drive of a Buda Torque Converter Unit is easier on all working parts of the machine.

*Before you re-power or specify power for a new shovel, crane or dragline, get the Buda Diesel Torque Converter Unit story. It's worth knowing. Your nearby Buda Distributor can give you complete details now.*

BC-33



**BUDA DIVISION • HARVEY, ILLINOIS**

**ALLIS-CHALMERS MANUFACTURING COMPANY**

## Beat the Engineer Shortage

ONE OF THE ACUTE PROBLEMS facing the construction industry is a shortage of properly trained engineering and supervisory personnel. Unless the number of men entering colleges for civil engineering and construction courses is materially and speedily increased, the result may be catastrophic.

The number of non-military civil engineering graduates has been dropping steadily—from some 24,000 in 1952 to an estimated 10,000 for the current crop. And this in the face of an ever-increasing yearly volume of construction put in place.

There is much that the construction industry can do, however, to help alleviate the engineer shortage. And now is the time to do it.

One way for individual firms to ease their own problems, of course, is to utilize present engineering staffs to better advantage—to get more "mileage" from them. In many outfits, much of the engineers' time is taken up in routine tasks that might better be handled by non-engineering personnel, freeing the former for technical work. Among such jobs are drafting, collecting and collating data, calculating, ordinary layout, record keeping and expediting.

But although worth-while, this expedient does nothing to attract additional people into the engineering field. On the other hand, vocational guidance and talks to students in high schools can do much to channel them into careers as engineers. Contractors should also arrange field trips to instill in the students an enthusiasm for construction. Help of this kind must be volunteered to the schools. It will not do to wait until asked.

Increased numbers of scholarships should be made available for those high school graduates who are not financially able to pay for advanced technical education. One contractor group, for example, has established at the University of Illinois a yearly \$4,000 four-year highway engineering scholarship.

Summer employment should be made attractive to engineering undergraduates. Both the money and the experience gained can do much to insure subsequent graduation from college and a continued career in construction.

Should the projected expansion in highway building be initiated shortly, either under the President's program or one of the various modifications or substitutes proposed, the need for trained engineers will be even greater than it is now. And unless highway department salaries are raised to levels reasonably comparable with private industry, we may find future construction plans hampered by lack of engineering design and inspection talent.

As an interesting sidelight on the highway engineer shortage, here's the way one contractor group tried to help out their state. The contractors transported to the capital a number of interested senior engineering students. The contractors introduced the students to top highway officials, told them the virtues of highway work, and entertained them royally. The stunt worked: All the students accepted jobs—but not with the highway department. They were all hired, at better pay, by their contractor hosts.

While that method did not accomplish its specific purpose, it was far from a total loss. And more contractor groups, and more construction companies and more individual contractors, must give increasingly of their time, effort and money to insure a greater supply of engineers for all segments of the construction industry. The need is great; the time is short.

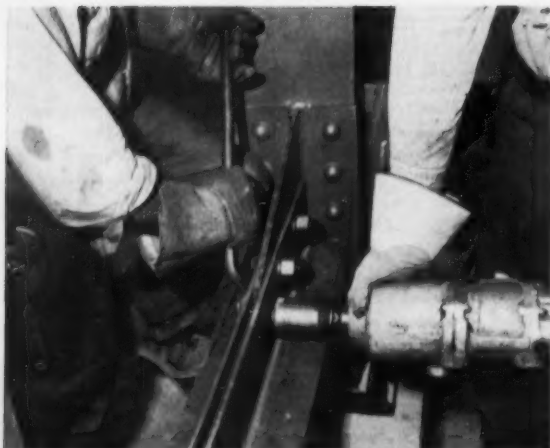
### AGC Honors H. W. Richardson

HIGH TRIBUTE WAS PAID to the late "Rich" Richardson, former editor of CM&E, by the Associated General Contractors at their 36th annual convention in New Orleans last month. The group's Governing Board established a Harold W. Richardson Award of a \$100 government bond to be given annually to the author of the best article on construction or construction methods published in AGC's magazine, "The Constructor." Rich was honored "in token and appreciation of his loyal attendance at board meetings and annual conventions of AGC for many years prior to his death in 1954, and in recognition of his active support of the constructive endeavors of AGC as an experienced and outstanding construction engineer, editor and executive."



Speed of erection and use of possibly less-skilled men are among the...

## Advantages of High-Strength Bolts



**BOLTS ARE EASILY INSTALLED** with spud and pneumatic impact wrenches by two men. Hardened steel washers under bolt head and nut make possible clamping forces greatly in excess of the best that can be achieved through the shrinkage of rivets upon cooling.

INCREASING NUMBERS of important steel structures are being erected with high-strength bolts rather than with rivets. Pound for pound, bolts are more expensive. But their high initial price is overcome by a low field installation cost that makes bolting at least comparable, and sometimes more economical, than field riveting.

One of the prime advantages of bolting is in speed of erection. Denver's 23-story Mile High Center building, for example, which called for 70,000 high-strength bolts for 4,600 tons of steelwork, was erected in only 82 working days.

Among the reasons for shortened erection time is the fact that high-strength bolts are also used for fitting up. Thus they need not be removed and replaced, as when riveting. Then too, the actual time to tighten a bolt with an impact wrench is about half that of buttoning a rivet.

This speed of tightening also improves the noise factor by reducing its duration. In addition, the impact wrench itself normally makes less than half the noise of a rivet gun.

Not the least of the advantages of high-strength



bolting is in ease of installation. Where power tools are not available, bolts can be tightened by hand wrenches. In all cases, a simple spud wrench replaces the riveter's pneumatic holder-on eliminating one air hose and the nuisance it causes. And because the bolts are used cold, there is no fire hazard.

Another advantage is that bolts can be fastened by less-skilled labor—riveting crews need longer training. Indeed, it was the post-war shortage of skilled riveters that boosted the use of high-strength bolts.

Recent modifications in specifications of the research Council on Riveted and Bolted Structural Joints should give added impetus to bolting. Now, except in cases of dynamic loading, contact surfaces of joints need no longer be free of paint. This will reduce steel fabrication costs by eliminating masking during shop-coat painting.

Another modification states that on non-parallel surfaces, "flat washers (rather than beveled) may be used if the abutment surfaces adjacent to the bolt head and nut do not have a slope of more than 1 to 20 with respect to bolt axis, provided that the nut will be torqued against a non-sloping surface." Thus it is unnecessary to use beveled washers when the bolt head bears against the sloping flange of, say, a Bethlehem wide-flange beam.

The Research Council admits its specifications are conservative in allowing one high-strength bolt to replace only one rivet of the same nominal diameter. (The Industrial Fastener Institute reports that two bolts will safely carry the same shear load as three rivets.) So, should this one-for-one requirement be relaxed, high-strength bolting will become even more economical and more wide-spread.

## The Right Way To Tighten High-Strength Bolts

HIGH-STRENGTH BOLTS are usually tightened by pneumatic impact wrenches. Operating at 80 to 90 psi, the wrench takes about 5 sec to turn the nut to desired tightness after it has first been seated. Depending on bolt size, one 160-cfm compressor can power as many as six wrenches. To insure reaching specified minimum tightness, air-pressure of the wrench is so controlled that the wrench stalls at desired bolt tension (see table).

The wrench should be calibrated once a day under actual field conditions. Bethlehem Steel Co. erection crews use the calibrating device shown in the accompanying photo. Basically it is a 60-ton hydraulic center-hole pulling jack fitted with a yoke that accommodates a high-strength bolt. Tension applied to the bolt by the impact wrench is read directly on the jack gage.

Air pressure and approximate torquing time actually required to stall the wrench are determined, using as many trial bolts as necessary. This procedure, repeated for each bolt size, also helps train the wrench operator.

Bethlehem reports that its time of impacting varies from 5 to 15 sec. In practice, it tightens until the wrench stalls, this point being indicated to the operator by chalk marks on the wrench socket.

Minimum specified breaking strength of the bolts is not reached until a tension in excess of 150% of the value given in the table has been applied. Therefore, too close attention to the upper limit of tension is unnecessary, and only increases erection cost.



WRENCH IS QUICKLY CALIBRATED on device made from 60-ton hydraulic pulling jack and yoke in which bolt is fitted. Wrench should be calibrated daily for correct bolt tension.

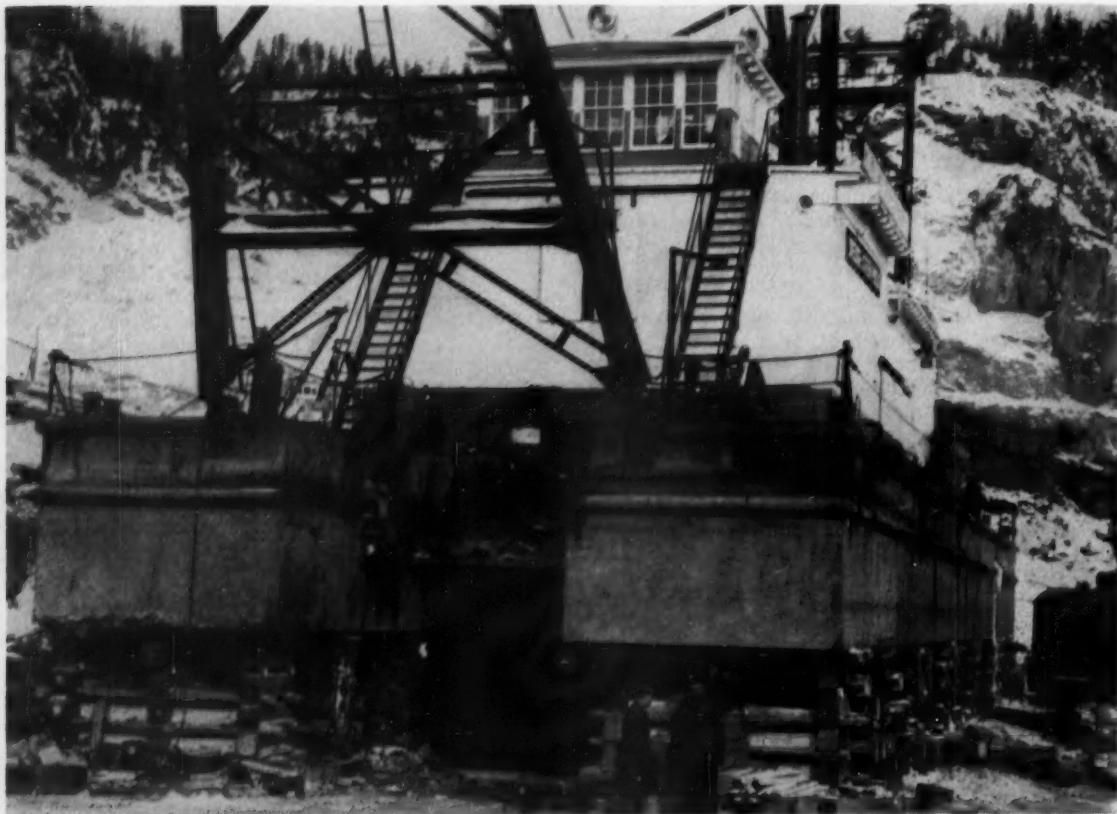
### High-Strength Bolting

Bolt Size (in.)	Minimum Tension* (lb)	Equivalent Torque (lb-ft)	Recommended Tension** (lb)
1/2	10,850	90	12,500
3/8	17,250	180	20,000
3/4	25,600	320	29,000
7/8	32,400	470	37,000
1	42,500	710	49,000
1 1/8	50,800	960	58,000
1 1/4	64,500	1,350	74,000

\* Equals 90% of minimum elastic proof load of bolt

\*\* For calibrating impact wrenches; equals minimum tension plus 15%





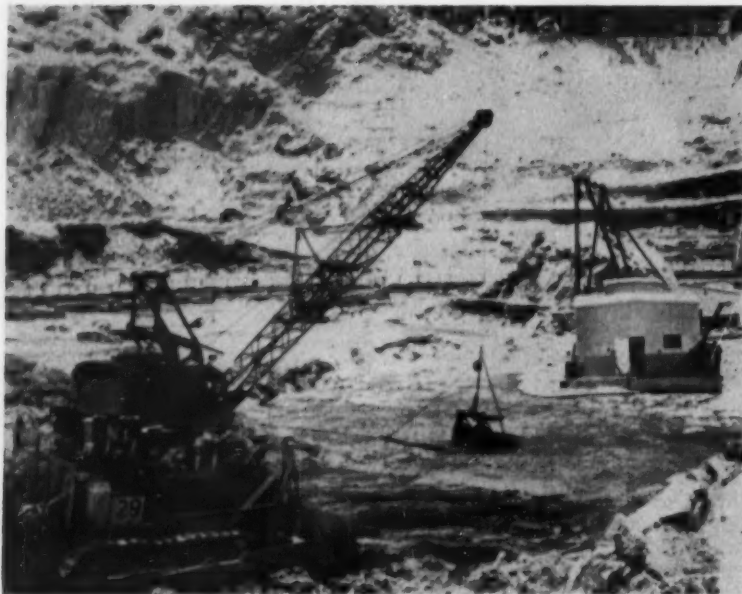
900-TON "STEEP ROCK", one of two dredges, is moved overland 2 mi by the portage method. The dredges were floated over the

blocking and the water was then drained. Three crawler units were welded on to the hull for the hazardous journey.

## Tricky Portage Operation Moves

By CHARLES J. POPPE

Resident Engineer,  
Construction Aggregates Corp.

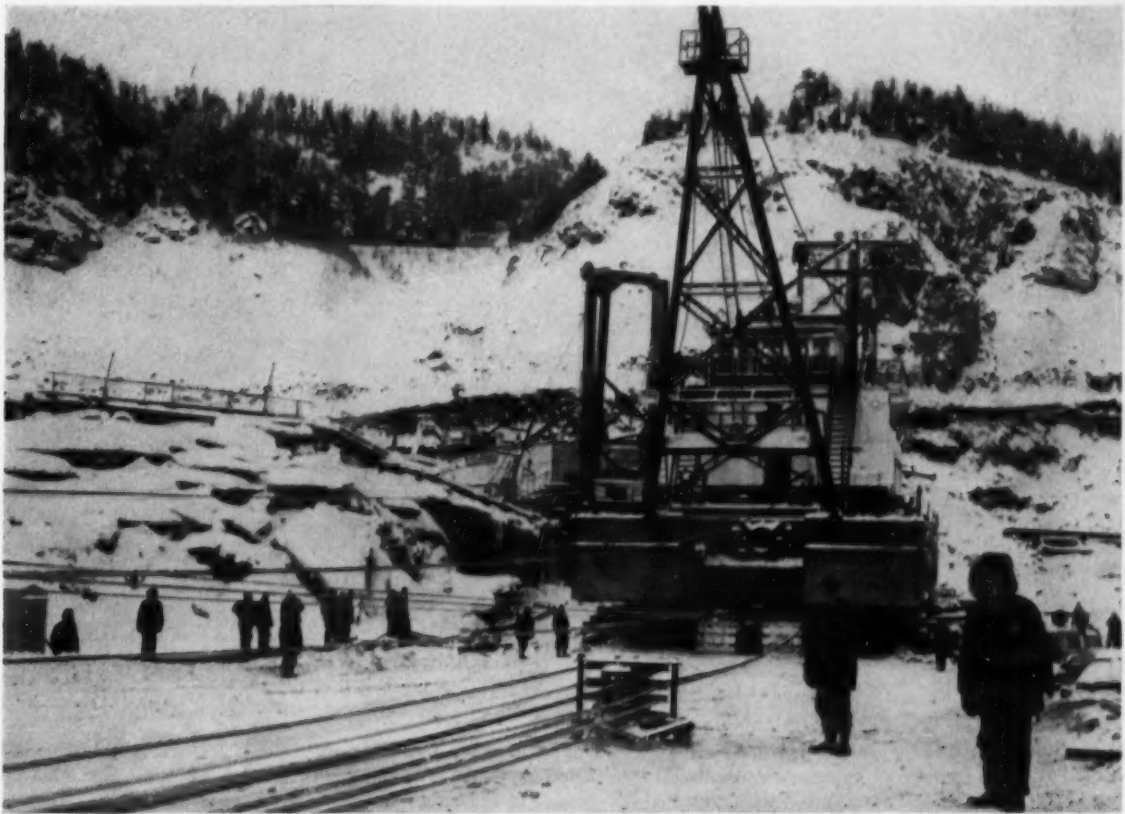


BECAUSE OF THE EXTREME temperature, 3-ft ice adhered to the bottom of the vessels. First, the ice was broken up with a tug and then a dragline used to clear the area.

FACED WITH THE PROBLEM of moving two 900-ton hydraulic dredges used to remove overburden at the Steep Rock Iron Mines, Ltd., Ontario, Canada, the Construction Aggregates Corp. borrowed a "portage" idea from the Indians who roamed that territory a half-century ago and successfully moved the units intact, even though the temperature was 20 deg below zero.

When the two barges were originally brought in to drain a lake of 1,200-ft elevation to 900 ft, they were brought in piecemeal in car-load increments. It was expensive, and the company did not want a repetition of this method for moving the two barges on the 2-mi return trip.

A study was made of the possibility of moving them intact over



AFTER THE CRAWLER UNITS were in place, the dredges' own hoisting machinery, plus the help of four International TD-24s and

two Euclids were used to pull and push. The task was made more difficult because of minus 20-deg temperatures.

## Two 900-Ton Dredges 2 Miles

a difficult route already available—an ore-haul road clinging to the west side wall of the basin. A ramp on grades from 8 to 11% connects this road with the location of the dredges in the bottom of the hole.

Huge trailers were investigated; a housemover consulted; a ship builder brought in who suggested building ways and rollers; still another suggested butter boards and sliding them on greased timbers. All these methods were eliminated because of over-all cost and cumbersome methods.

Finally, the staff of the firm devised a scheme of attaching three sets of undercarriages from huge crawler cranes to the bottom of the dredges and pulling them up the road with the hoisting machinery already aboard the dredges, augmented by four International TD-24 tractors and two 34-ton Euclids, pushing and pulling.

The hoisting machinery was operated through a system of blocks attached to the ships' anchor



ORIGINAL ELEVATION of the lake was 1,262 ft. More than 162 ft of water, plus 200 ft of mud were pumped out in order to provide a working area to start operations.



OVERLAND JOURNEY was made on a 2-mi snow-covered, ore-haul road with grades ranging from 8 to 11%, part of which is visible in the background. Both areas, departing and receiving, had similar set-ups of forms, leveling and fill.

chain secured to deadmen imbedded in the rock alongside the road. To make sure the proposed plan would actually work, a full scale test was first made in which the 67-ton undercarriage of the 5-cu yd Manitowoc 4500 crane was loaded to 300 tons with steel slabs. The drawbar pull required to move it was recorded on a tensometer chart.

Three units of this kind made up the carriage for one dredge, two units being attached near the stern and one unit near the bow.

To provide movement to conform

to road variation, huge pintle bearings were installed to transfer the weight of the dredge to the crawler units. Turning was made possible by tongues fastened to the crawler frames and operated by steamboat ratchets secured to the dredge hull.

The problem of getting the crawlers under the dredges was complicated because it was not permissible to submerge them. The water in the lake was lowered by one of the dredges to allow dry excavation of a rock ledge 100 by 400 ft. Bearing cribs weighted down with iron ore were then set

on this shelf and the lake re-flooded so the dredges could be floated over the blocking.

The dredges again lowered the water, permitting the dredge to settle on the blocks. The crawlers then were rolled into place, the dredge hulls jacked down and the crawlers welded into position.

A similar shelf has been excavated at the site of the refloating of the dredges when they finish their 2-mi journey. Here they will be jacked off the crawlers and the water raised in the basin to float them off the blocks.

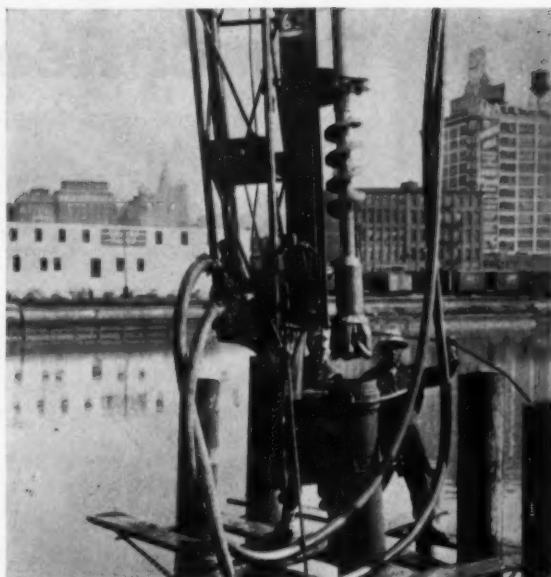
## Crawler Runs on Tires

Every contractor knows how difficult it is at times to locate heavy used planks to protect a roadbed from the shoes of a track-type tractor. Charles Potter, pipe-line superintendent of Midwestern Constructors, Oklahoma City, Okla., solved the problem by using old truck tires. He simply rolls them into place and the International TD-18 crawls on rubber across the road.

Hope Charles remembered to lower the boom to clear those wires.







ROLLER BIT is inserted into 14-in. pipe pile to drill 2-ft socket into sharply dipped bedrock. Auger attachment on drill rod helps clean out pile. Clamp holds leads to top of pile.

## Rotary Drill Anchors Pipe Piles in Bedrock

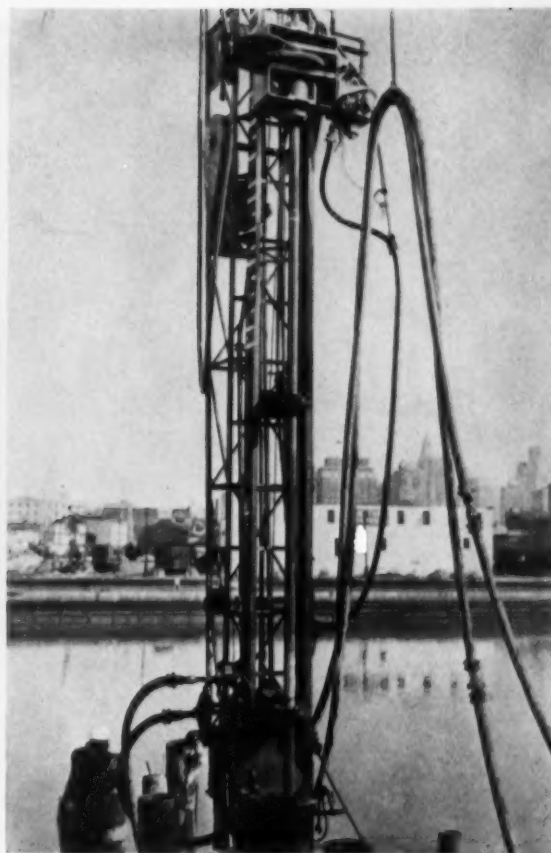
AN AIR-POWERED ROTARY DRILL is doing a first-rate job of anchoring pipe piles into sharply dipped bedrock along Philadelphia's Schuylkill River. In less than 45 min it can drill a 2-ft socket into the rock at the base of a pile. Both the socket and the pile are then filled with concrete, anchoring the pile to the rock.

Nearly 1,500 pipe piles 45 to 75 ft long are being driven by Lipsett, Inc. for the west approach ramp on a new expressway bridge. Piles are 14 in. in dia, have  $\frac{5}{8}$ -in. walls, and are designed for 60-ton loads.

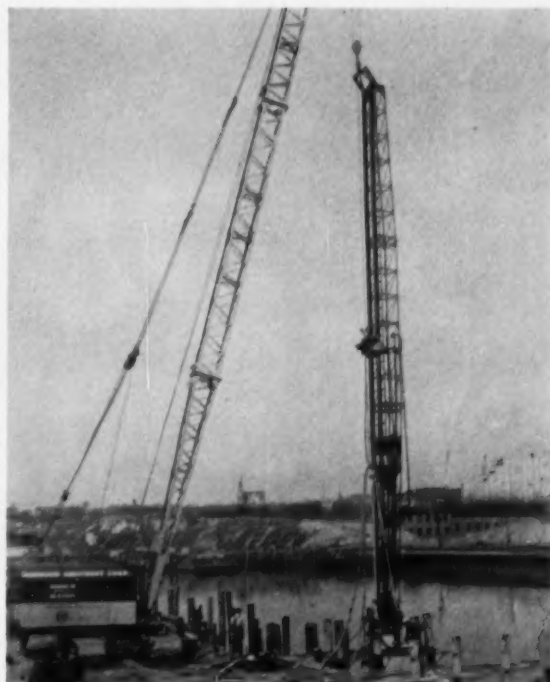
Made by Hugh B. Williams Mfg. Co. of Dallas, Tex., the rotary drill operates in 76-ft leads hung from the boom of a Lima 802 crane. It is powered by two Ingersoll-Rand 20-hp air motors. One operates the hoist that raises and lowers the drill, and the other rotates the drill through a chain-drive mechanism. When the base of the leads is clamped to the top of a pile, the hoist lowers the 4-in. hollow drill rod into the pile until the 12-in. Reed roller bit makes contact. The bit then is rotated at about 80 rpm, as air blows through it, forcing dirt and chips up and out of the pile. One bit usually serves about 200 piles.

L. Berzina is project manager, S. Stiles is superintendent, W. Riffin is project engineer for Lipsett, Inc. Philadelphia. S. Ostinchuk is resident engineer for the Pennsylvania Dept. of Highways.

DRILL LEADS 76 ft long is hung from 110-ft boom on Lima 802 crane. Job requires nearly 1,500 pipe piles up to 75 ft long.



DRILL ROTATES at base of pile, as dust is blown out. Two 20-hp air motors power rig. One operates hoist that raises and lowers drill, and the other rotates drill through chain drive mechanism. About 1000 cfm of air are needed for hoisting, drilling, and blowing.







**CRANE WITH 230-FT BOOM** swings 1-yd bucket of concrete over 10th floor at New York City housing project. With 190-ft main boom and 40-ft jib, P&H 955-ALC can pour entire 22-story frame. Knickerbocker Construction Co., of New York, keeps three of the big units busy at all times. One crane hoists reinforcing steel, and the other two handle concrete buckets. From the jib, a 1-yd bucket is swung on a 90-ft radius.

## Cranes Reach

**THREE CRANES** with 230-ft booms are pouring 22-story apartment buildings in New York City. The booms are believed to be the longest ever mounted on crawler machines.

The big units are P&H 955-ALC's, with 190 ft of main boom and 40 ft of jib. Made of lightweight welded alloy steel aircraft tubing, the booms are raised without an assisting crane.

Knickerbocker Construction Co., of New York, handles reinforcing steel with one crane and pours concrete with the other two. A 1½-yd bucket of concrete can be swung from the 190-ft main boom at an 80-ft radius and a 1-yd bucket can be handled from the 230-ft boom at a 90-ft radius. An electro-magnetic type coupling reduces shock on the long boom.

Except at the top few floors, the concrete bucket can reach any part of the building. But above the 18th floor some concrete has to be bug-gied. At the lower floors, two cranes can pour 600 yd a day. On the top floors, the longer lift and the bug-gying reduces the pour to 400 yd. During a good week, the contractor pours 12 units of 200 yd each.

J. Madori is superintendent and C. Davidson is chief engineer for Knickerbocker Construction Co.



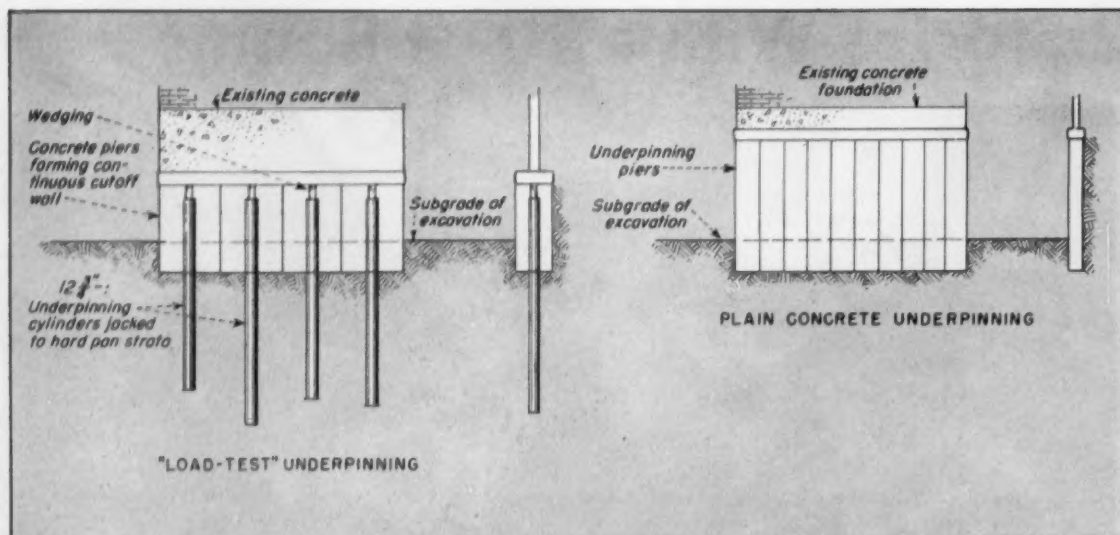
**SPECIAL GANTRY** on big crane can lift 230-ft boom without an assisting crane. Boom is made of lightweight alloy steel aircraft tubing. Crane's electro-magnetic coupling reduces shock loads on boom.

## 22 Stories With 230-ft Booms



**BETWEEN POURS** one of the three long-boom cranes on the job raises reinforcing steel to the 17th floor of one of the big 350x150-ft buildings. Working with a boom of this length requires perfect coordination between a skilled operator and signalman. Moving a crane can be hazardous unless the route is carefully laid out

and then leveled and compacted. And the cranes have to do a lot of moving over the area. Each building has eight wings and courts, and the long-boom units have to shift position often to reach all parts of the floor. On the top floors however, some bugging is required.



**PROTECTION METHODS**—Load-test underpinning is used in lieu of plain concrete underpinning where a high ground water level pre-

cludes more than shallow excavation, or where no stratum of adequate supporting value is found within a reasonable depth.

## Parking Garage Foundation Requires Variety of Protection Methods

WHEN IT BECAME APPARENT that excavation for the foundations of the Hartford Municipal Parking Garage would threaten adjacent buildings, the general contractor, B. Perini and Sons, Inc., of Framingham, Mass., called in New York City's cost-conscious Coakley & Booth to develop a plan for their protection.

The problem was that not only would the excavation remove lateral support from the adjacent structures' shallow foundations, but also that the soil on which these buildings are founded is a "varved clay" (layers of clay interspersed with sand). This soil possesses the objectionable characteristics of clay with its expansion and loss of support in the presence of water, but in addition, the sand layers afford a ready access into the soil for any surface water.

As the construction contract had a "time is of the essence" clause, requiring the garage to be in use within 8 months to accommodate Christmas shoppers, the protection operation had to be carried out with no interruption of the tight construction schedule.

C & B, after consultation with the excavation contractor, the E. B. McGurk Co., decided to handle the variety of structures as independent problems. The most difficult was a heavily loaded five-story warehouse. Inspection of the structure brought to light the following facts: (1) The shallow foundations in unstable clay had already settled and cracked badly; (2) One corner of the building had cracked away from the rest of the structure. Wide diagonal cracks through two bays of brick wall and pilaster indicated that any excavation removing lateral support might bring it tumbling down.

C & B decided to underpin this structure with 12 $\frac{3}{4}$ -in. pipe cylinders jacked open-ended through the clay to a hard-pan layer 18-25 ft below the surface.

The cylinders were jacked to a bearing of 60 tons with Watson-Stillman hydraulic jacks. Use of a Dudgeon triplex-hydraulic pump contributed greatly to the speed and economy of the operation, allowing three jacks to be worked in rotation with an average jacking time of less than 5 min for the

9-in. piston distance, as opposed to the long, hard, hand jacking operation. The cylinders then were cleaned with pancake auger, bar and orange-peel bucket, and the empty shells tested at 60 tons each for 2 hr. Two Watson-Stillman hand-operated hydraulic pumps were substituted for the Wisconsin-powered triplex pump to allow it to remain in continuous operation. The piles were next filled with concrete and after setting for a day, "load tested" to a 60-ton capacity using the Watson-Stillman pumps and jacks.

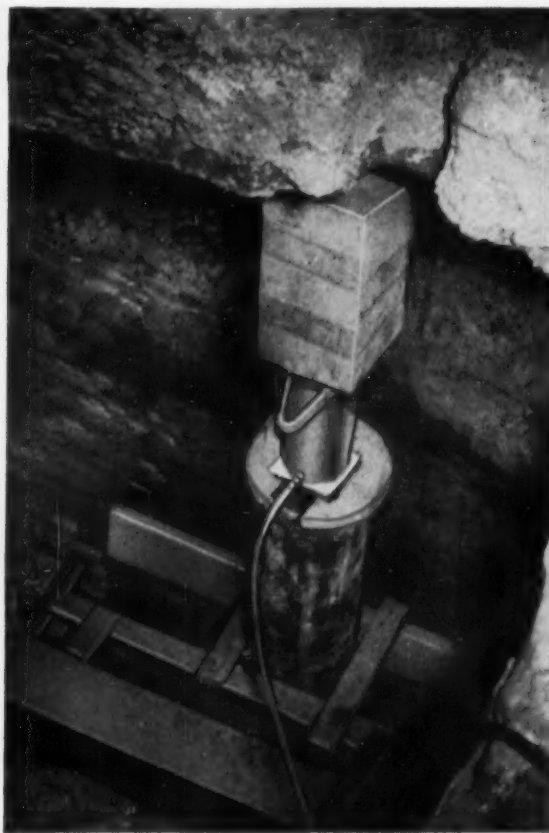
The jacking pits were finally filled with concrete to form a 30-in. continuous cutoff wall.

The sequence of underpinning was planned throughout to leave a minimum of unsupported area in widely separated locations at any time. Critical portions of the wall and pits left open over week-ends were shored with steel or timber posts and screw-jacks to temporary spread foot-blocks.

Check levels and offsets run during the entire underpinning operation showed no perceptible movement of the structure.

The next pressing problem was





**WATSON-STILLMAN HYDRAULIC JACK SETUP** for jacking 12 $\frac{3}{4}$ -in. underpinning cylinders against existing building foundation. Oak blocks act as spacers until another cylinder length is added.



**WAREHOUSE FOUNDATION STANDS** above excavation subgrade on underpinning. Concrete cutoff wall retains earth under floor slab. Louvers in horizontal wood sheeting relieve water pressure.

a five-story hotel, also of brick gravity construction. As the building load was lighter and the adjacent excavation comparatively shallow, it was decided to use plain concrete underpinning to take the wall loads to safe bearing below the garage subgrade. C & B found in excavating the jacking pits for the storage warehouse that air tools speeded excavation in the clay considerably. Therefore, they moved in a Chicago Pneumatic 600 cfm centrifugal compressor to supply adequate air for clay spades.

A minor underpinning operation in another part of the site called for a third type of protection—inter-pier underpinning. This structure, a one-story brick building, required only a light foundation. Tight clearances and a deep excavation immediately adjacent required underpinning. Inter-pier underpinning (alternate plain concrete piers, designed to give bearing capacity equivalent to 100% of the original, with 3x10 creosoted wood sheeting installed horizontally behind steel angles embedded in



**INTER-PIER UNDERPINNING PROVIDES** adequate protection for light one-story structure. Concrete piers furnish support equivalent to original building foundation, while 3-in. horizontal wood sheeting prevents loss of earth from under the structure.





A FEW TURNS of manually operated shoring jack stresses 12x12 timber shore, compensating for foot-block settlement. Operations are under the supervision of job superintendent, J. C. Gunther.



CUTOFF WALL of steel H-pile soldiers and horizontal wood sheeting is installed to  $\frac{1}{2}$  in. tolerance for use as wall form. Steel wale is placed outside the wall to facilitate concreting.



TIGHT SHEETING TOLERANCES of cutoff wall allows the installation of Gow caisson column foundation on wall center line. Bays at column points were resheeted later for use as wall form.

the concrete of the piers) filled the bill economically.

An interesting innovation was the use of temporary canvas tenting over the underpinning area. This not only prevented loss of support in the clay through infiltration of collected surface water, but allowed the operation to continue uninterrupted through a very wet season.

A slightly increased clearance between new and existing foundations allowed C & B to trim protection costs by using a cutoff wall of steel soldier beams and horizontal wood sheeting to protect a fourth structure. C & B installed the cutoff wall to  $\frac{1}{2}$ -in. tolerance so that the sheeting could be used as the outside wall form. The horizontally stiffening H-section wale was bolted to the outside of the soldiers for convenience in pouring the walls, and the supporting rakers wedged directly to the soldiers. In order to allow the Raymond Concrete Pile Co. to install Gow caissons within the outside wall, the bays of sheeting at the column points had to be set back far enough to give clearance for Raymond's rotary-bucket Hunt machine.

After the caissons were installed, C & B's crew reset a second line of sheeting in these bays for use as a wall form.

Supervising the project for the City of Hartford were Daniel J. Tasillo, architect, A. J. Macchia, structural engineer, and J. Johnson, resident inspector.

J. E. Chiaverini was general superintendent for B. Perini & Sons, Inc., the general contractor.

J. C. Gunther was superintendent, and N. J. Glover was foundation engineer for Coakley & Booth, Inc.



L-SHAPED ENCLOSURE built over intake and powerhouse areas of South Dakota's Gavins Point Dam permits concrete to be placed throughout cold winter. Enclosure consists of removable wood panels supported on trusses and wall panels tied to intake piers.

## Giant Enclosure Shields Winter Concreting

DESPITE TEMPERATURES that often hovered near zero, concrete on South Dakota's Gavins Point Dam was placed throughout the winter. But it had to be done inside a giant enclosure.

Joint-venture contractors, Western-Massman-Jones, housed and heated a volume of 1,350,000 cu ft around the intakes and erection bay of the powerhouse. Covering an area of about 35,000 sq ft, the L-shaped structure was 56 ft high at the start, and was raised successively with each lift of concrete to a 96-ft height. It consisted of roof and wall panels made of 1-in. tongue-and-groove sheeting on 2x6 studs and covered with tar paper. Roof panels were supported on

wood trusses that spanned the intake piers. They rested on continuous steel beams that ran across steel columns left in the concrete. Roof panels were built so that they could be lifted off to admit concrete buckets.

Wall panels measured about 10x24 ft and were tied into concrete intake piers. All panels were fabricated in the carpenter shop and transported to the pouring site in trucks and cars. They were positioned by a Whirley crane and bolted in place. The entire structure was erected in 4 days.

All heating was done with three steam boilers. A 120-hp high-pressure boiler supplied steam to 12 blower-type heaters of 300,000 Btu

capacity and 4 of 150,000 Btu capacity. Two other boilers rated at 100 and 75 hp ran steam lines to 17 heaters of 260,000 Btu capacity. Also, there were eight 30,000-Btu units that could be quickly shifted to a critical area.

Concrete was placed throughout the winter, except for 4 days when the temperature averaged 18 deg below zero. Placing hit a peak in January with 4,300 cu yd.

W. Pappenheimer is project manager, J. Fletcher is general field superintendent, and J. Strubert is chief engineer for Western-Massman-Jones. Gavins Point Dam is under the supervision of the Omaha District of the Corps of Engineers, U. S. Army.



**DIRT POURS OFF** delivery belt of Sierra loader into 20-yd body of semi-trailer in cut through sandy California soil being excavated for a southern California freeway by Vinnell Constructors. One Cat D8 pulls and one pushes loader for 45-sec loading.



**LOADED TRUCK** wheels into fill area nearly 2 mi from the cut. Ten of these Cummins diesel-powered haul units, built for Vinnell by Cook Bros. of Los Angeles, keep the loader busy. Dozer-equipped Cat D8 stands by to spread incoming load.

## Fast-Stepping Fleet Hauls Big Yardage



**SPRINKLER ON MACK TRUCK** lays down a wide spray over the borrow area. Water stabilizes sandy material for better traction for trucks and improves it for compaction.

A FLEET OF 10 fast-moving tractor-trailer units is taking 7,000 yd a day out of a big cut on a southern California freeway job. The trucks, specially built for Vinnell Constructors by Cook Bros. of Los Angeles, easily keep up with an elevating loader, even though loading cycle takes only 45 sec and haul is nearly 2 mi.

The 7,000-yd daily average is moved in an 8-hr. shift. The cut totals 1,200,000 yd. And bid price is only 29c a yard with a 1,000-ft free haul. Over haul is 10c a mile.

The Cook Bros. bottom-dump units are hauled by tractors powered with Cummins Diesel 600R engines rated at 150 hp. Top speed





**BUSY COMPACTORS**—a Southwest rubber-tired articulated unit and a dual-drum SSB sheepfoot—are drawn by Cat D8's that aid leveling as they go. Sprinkler truck also covers fill thoroughly. Combination easily gets 95% of relative density

over the haul road is 30 mph. One big advantage of these trucks is that they are sized for legal haul over the regular street and highway system. As a matter of fact, the contractor plans on having them haul rock base material for later paving work.

Loading the units is a Sierra loader hauled by a Caterpillar D8 tractor. Another D8 serves as a pusher and is also used to assist the trucks when traction becomes difficult in occasional soft spots in the cut.

The Sierra loader takes a cut of about 3 ft in the sandy material. Loading cycle is about 45 sec for the 20-cu yd trucks.

In fill areas, windrows left by the bottom-dump trucks are spread by bulldozer-equipped D8's. After wetting down by Mack sprinkler trucks, the fill is com-

pacted by a Southwest rubber-tired, articulated roller and a dual drum sheepfoot roller. Both rollers are hauled by D8 tractors. This combination is getting 95% of relative density with little difficulty.

The sprinkler trucks also continuously wet down the haul road. And they wet down the borrow area to improve traction for the trucks in the sandy material. A Caterpillar No. 12 motor patrol works the borrow area and the haul roads almost continuously to keep them open.

The job is a unit of the Harbor Freeway that will provide better access to the Los Angeles Harbor Area at San Pedro. This area is presently served by a twisting 4-lane street that becomes a bottleneck at rush hours and during heavy truck haul periods. At one point, the freeway job and the 4-

lane street are pinched between a major oil refinery and the dock area. Construction of high retaining walls to hold the fill at this area is a bottleneck on the job. The haul road threads its way through this tight construction zone.

The 1,200,000-yd cut is 450 ft wide and will be 90 ft deep. Earthwork on the job is balanced with all-cut material going into freeway fill.

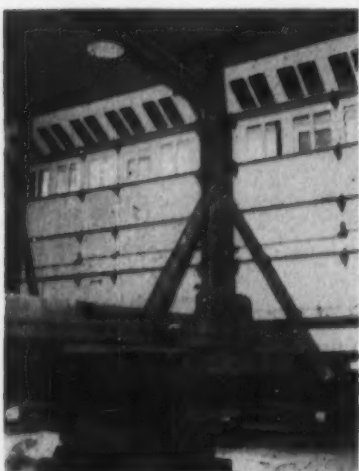
The new freeway will be a 4-lane divided highway with provision for future expansion to 6 lanes.

Superintendent on the work for Vinnell Constructors is G. G. McAfee. The job is a project of District VII of the California Division of Highways headed by P. O. Harding, assistant state highway engineer. Resident engineer on the work is F. E. "Mike" Sturgeon.





AFTER A LAND JOURNEY across a railroad, a major highway and several primary utility lines, the Napeague Coast Guard Station building is skidded across timber cribbing on to a 130-ft barge for towing across Gardiner's Bay to Montauk Point.



BUILT IN 1938, the 200-ton, 15-room building is in fine structural condition, and required only minor bracing for the moving operation.

## Contractor Takes Coast Guard to Sea

UNCLE SAM'S COAST GUARD has always been ready to go down to the sea in boats, ships and planes whenever necessary to save lives or property. On March 13th, Curtis Davis of the Davis Engineering Co., Blue Point, L. I., took the Coast Guard station at Napeague, L. I. to sea for a 10 mi-voyage to its new location at Montauk Point.

Evidently the job of moving the 200-ton, 15-room structure across the Montauk Highway, the Long Island Railroad tracks, two swamps and a number of telephone, telegraph and electric power lines followed by a 10-mi crossing of Gardiner's Bay looked like a pretty tough assignment to most contrac-

tors, as Davis was the only bidder for the contract.

Davis, with a crew of eight to ten, and after a 4-month struggle with the weather and utilities relocations, skidded the building, together with a 60-ton shop building, to Napeague Harbor where they were loaded on to a 130-ft barge and towed singly to their new location.

En route, however, the station building went aground and it looked for a while as though the Atlantic might claim its old enemy. The Davis crew finally was able to free the building and re-erect it on a new foundation, where it will be ready for service this summer.



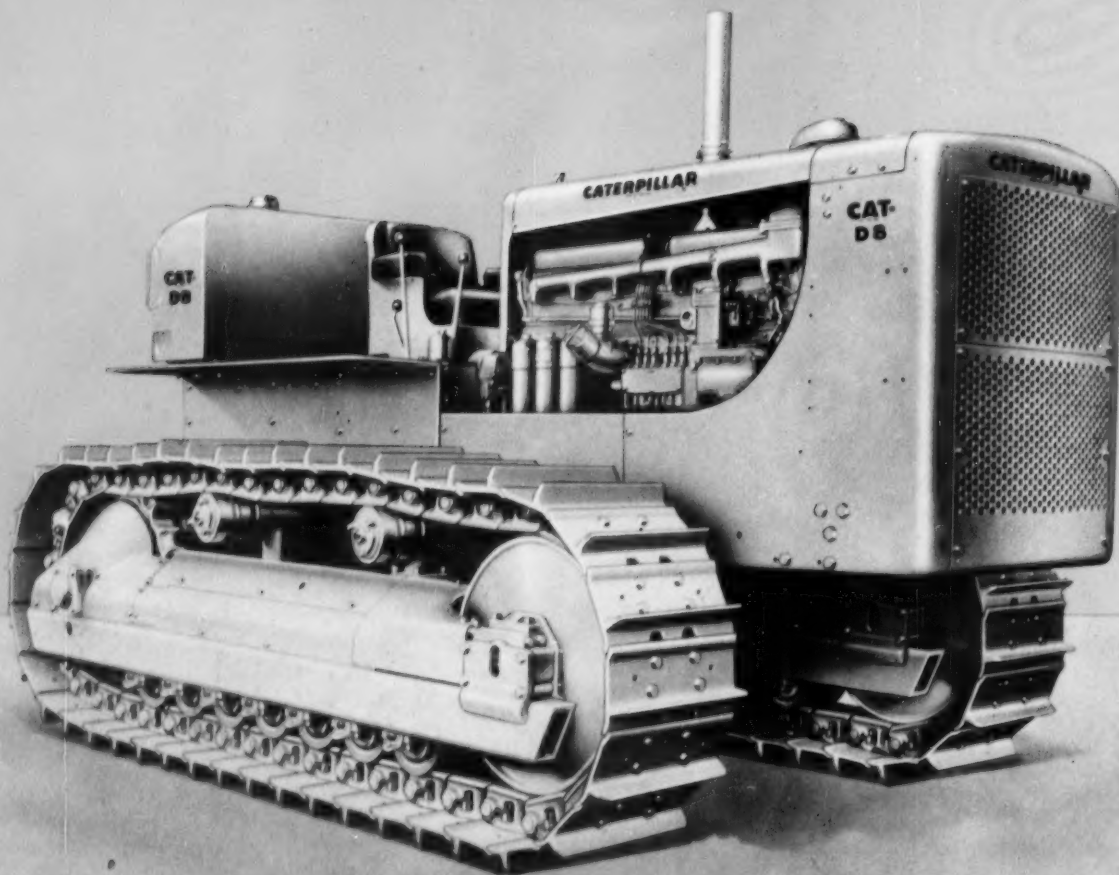
UNDER WAY TO MONTAUK POINT, the station building is in tow by two motor launches. Although driven aground by adverse weather conditions, the move was successfully completed when a swing of the tide freed the barge again.

**NEW**



# CATERPILLAR ANNOUNCES THE **NEW D8**

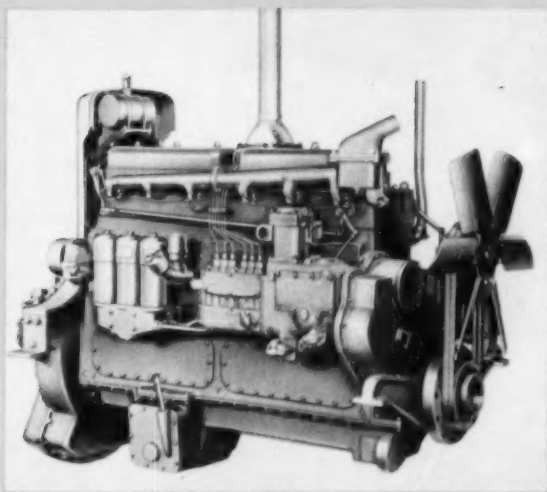
**SERIES D and SERIES E**



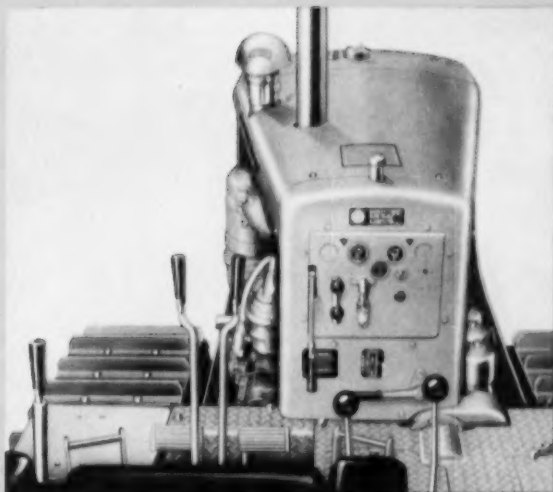
## **Choice of TORQUE CONVERTER or DIRECT DRIVE**

You're looking at a major advance in tractor design—the new Caterpillar D8 Tractor. While it still bears the name of the unit that earned world-wide recognition as “boss of the crawlers,” it is basically a *new* machine with 155 HP at the drawbar and your choice of torque converter (Series D) or direct drive (Series E). From its new 7-roller track frame to its new 191-HP, 1200-r.p.m. engine, it is built to deliver an even higher standard of money-making

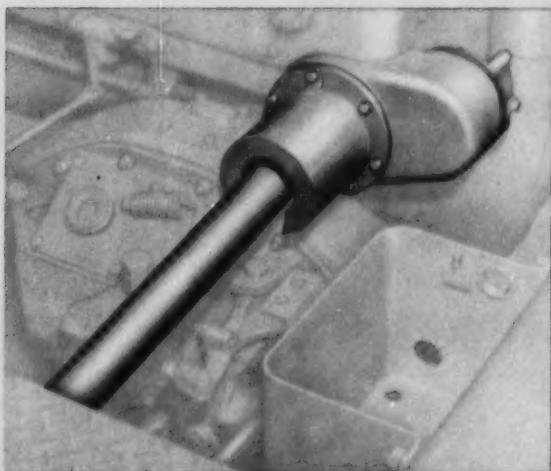
production on *any* track-type tractor application in *any* field. Along with its advance-design features, it retains such outstanding Caterpillar exclusives as the oil clutch and certain other job-proved developments. As a result, you can figure on it for *more* work at *lower* cost with *less* down time on *any* job. For complete information about the new, heavy-duty D8 Series D and Series E, see your nearby Caterpillar Dealer.



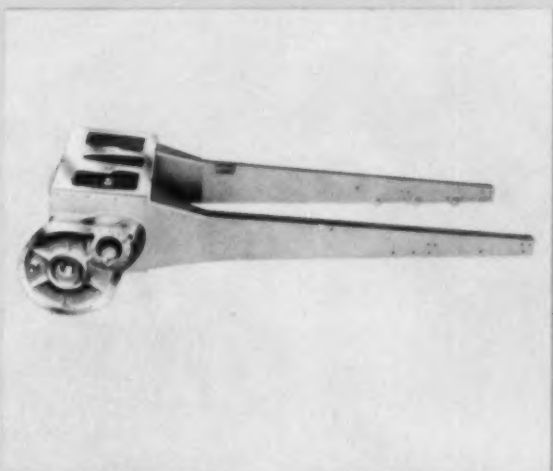
**NEW ENGINE**, with new fuel injection system incorporating capsule-type injection valves. Flanged center main bearing to take crankshaft thrust. "Hi-Electro" hardened timing gear integral with crankshaft.



**NEW EASY-WORKING CONTROLS** handy to comfortable, one-man seat. The new streamlined hood affords greater visibility. The new easy-to-see instrument panel is attached direct to engine.



**NEW "LIVE SHAFT" DRIVE**, independent of flywheel clutch. This important new feature provides constant power for rear-mounted cable controls or other equipment.



**NEW WELDED ONE-PIECE STEERING CLUTCH CASE**—main frame assembly for a stronger "backbone." Transmission and steering clutches can be removed without disturbing other parts.

**NEW OPTIONAL DRIVE**, torque converter or direct drive, whichever is best for your job. Torque converter: torque multiplication of 5 to 1 gives smooth operation in each speed range. 3 forward and 3 reverse: low 0 to 3.6 m.p.h.; intermediate 0 to 5.3 m.p.h.; high 0 to 7.4 m.p.h. Direct drive: 5 speeds forward and 3 reverse.

**NEW 7-ROLLER TRACK FRAME** for greater stability, flotation and better ride.

**NEW "WATER-QUENCHED" TRACK SHOES** for longer life than ever before.

**NEW HYDRAULIC BOOSTER STEERING**, pump drive direct from engine, independent of flywheel clutch, for maximum steering ease.

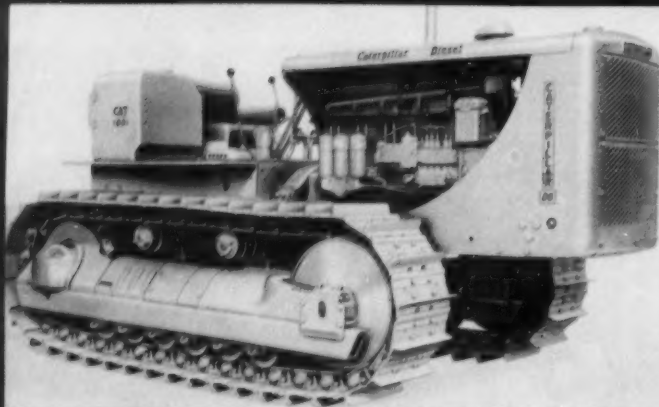
**NEW STARTING ENGINE** with more power for faster, surer starts in any weather.

**NEW "IN-SEAT" STARTING** for greater convenience.

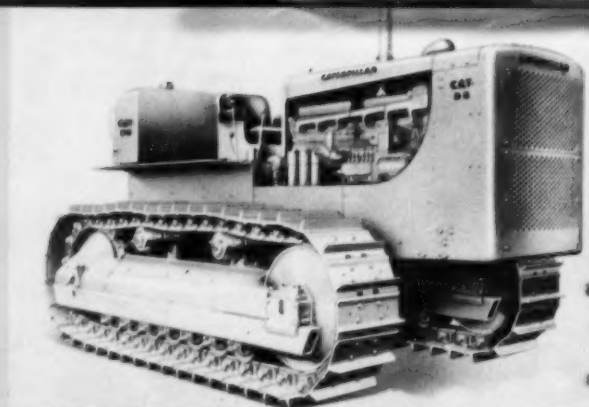
**NEW 118-GALLON FUEL TANK**, enough for normal 12-hour operation.

**NEW ATTACHMENTS** include cable controls—the new rear-mounted double drum No. 29 with constant power drive direct from engine, and the new front single drum No. 30. New, larger No. 8A and No. 85 Bulldozers, both cable and hydraulic controlled, are also available. The new No. 8U "U"-blade dozer has extra strength. Cable-controlled dozers use a 6-port line for greater lifting power. All equipment used on the D8 can be used on the new D8 Series D and Series E.





The D8



The NEW D8 Series D and Series E

## CHECK THE DIFFERENCE ADVANCE DESIGN MAKES BETWEEN THE D8 AND THE NEW D8 Series D and Series E

	D8	D8 Series D with torque converter	D8 Series E with direct drive
Operating Weight	38,155 lb.	41,265 lb.	40,430 lb.
Ground Clearance	10½ in.	13 in.	13 in.
No. Track Rollers	6	7	7
No. Track Shoes	39	42	42
Length of Track on Ground	99¾ in.	111¾ in.	111¾ in.
Area Ground Contact 22-in. Shoe	4389 sq. in.	4917 sq. in.	4917 sq. in.
Fuel Tank Capacity	98 gal.	118 gal.	118 gal.
Drawbar	Swinging	Fixed	Fixed
Drawbar Pin Size	1¾ in. dia.	2¼ in. dia.	2¼ in. dia.
Steering Clutch	Over center spring booster	Hydraulic booster	Hydraulic booster
Steering Clutch Case	Cast iron. Integral with transmission case.	Steel fabricated. Separate from transmission case.	Steel fabricated. Separate from transmission case.
Transmission Case	Cast iron. Integral with steering clutch case.	Cast iron barrel. Separate from steering clutch case.	Cast iron barrel. Separate from steering clutch case.
Main Frame	Box section bolted to cast case.	Box section welded to steel case.	Box section welded to steel case.

Production-wise and profit-wise, you have a new yardstick of performance in the CAT\* D8 Series D and Series E. Your Caterpillar Dealer, source of prompt service, will be glad to show you how this rugged new yellow machine can pay off for you!

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

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Please send me additional information on the D8 Series D and Series E.

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# CATERPILLAR\*

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The new D8 Tractor  
—another example of  
CATERPILLAR LEADERSHIP  
in action

# GLOBAL APPROVAL

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**BUCYRUS  
ERIE**

**110-B** 4½ cu. yds.

**150-B** ..6-cu. yds.

**190-B** ..8-cu. yds.

Scores of these outstanding excavators have proven their worth in varied quarrying, mining, and heavy-duty construction projects all over the world.

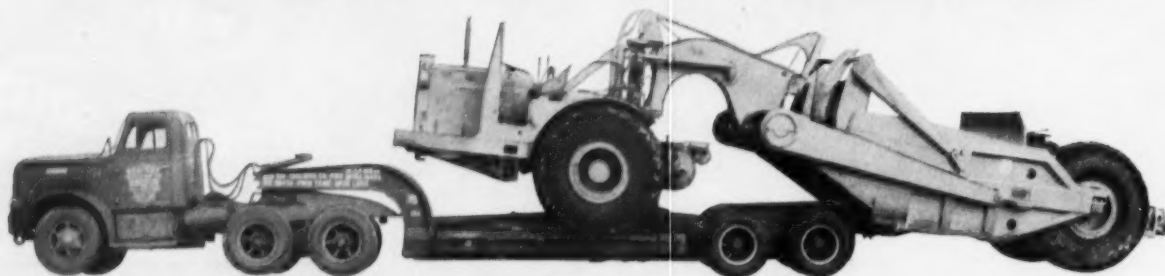
Remember, FOR THAT EXTRA MARGIN — in design, in construction, in all round performance, and, above all, in output — it's BUCYRUS-ERIE Ward Leonard electric excavators. 46155C

## BUCYRUS-ERIE COMPANY

South Milwaukee, Wisconsin

# CUT COST

...standard Talbert Trailer design permits interchange of decks of various lengths for more economical equipment hauling



Gooseneck removed for safe front end loading.



Easy positioning for proper load distribution.

Here's an example of the unique load-type trailer flexibility that only Talbert provides. Illustrations show RED TOP TRUCKING CO. of Hammond, Indiana, using a Talbert Model TD-25-RGRA Removable Gooseneck\* Trailer to transport a CATERPILLAR DW-21. This particular Talbert Trailer has a 13 foot deck which may be replaced with decks of other lengths by quickly and easily removing the gooseneck and rear axles.

You can substantially increase over-all earning capacity when you depend on a Talbert Removable Gooseneck\* Trailer to transport your equipment. Only Talbert offers a full line of Low-Bed Trailers which are specifically engineered to keep your operating cost low... incorporate safe over-the-front-end-loading... equalize load distribution... maximize all-weather mobility over any type of terrain. Yet all these profit-building Talbert Trailer features cost you no more.

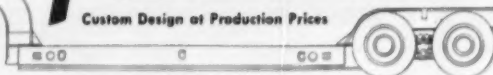


Send today for your free copy of Talbert Catalog 104...it gives all the facts on why Talbert Trailers can build greater profits for you.



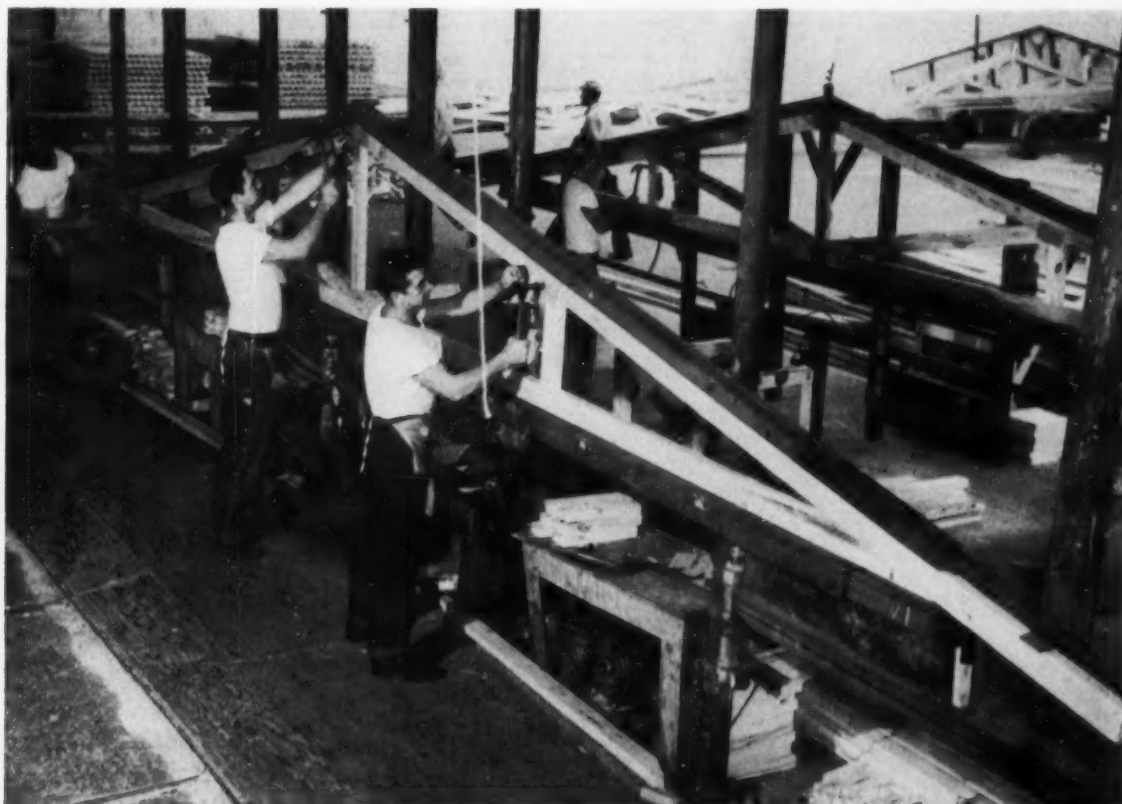
## Talbert

Custom Design at Production Prices



**THE TALBERT CONSTRUCTION EQUIPMENT CO.**  
7952 West 47th Ave., Lyons (Chicago suburb), Ill., Phone: LYons 3-3169

manufacturers of Talbert Low-Bed Trailers and Dump Semi-Trailers



Production-line assembling with simple grip-plate connectors help . . .

## Prefabricated Roof Trusses Cut Housing Costs



**BUNDLE OF PREFABRICATED TRUSSES** is swung off Rogers trailer with Pitman Hydraulic crane. Metal strips set in tie beam that runs over concrete blocks anchors trusses to building. Fast assembly protects the tile floors from elements, and keeps production moving.

**ASSEMBLY-LINE HANDLING** of a new type of prefabricated roof truss is saving time and costs on a big housing job in Florida. Made of 2x4's connected by metal grip plates, the lightweight truss not only cuts material, handling, and insurance costs, but also eliminates bearing walls and extra framing over doors.

Developed by A. Carol Sanford of Fort Lauderdale, Fla., the new truss is being used throughout a 10,000-home development near Miami. The contractor is Gaines Construction Co., of Miami.

Key to the Sanford Truss is a patented steel grip-plate fastened to each side of light wood members under the pressure of a 50-ton press. Sharp, oblique metal fingers,  $\frac{1}{4}$  in. long, punched out of a special electro-galvanized steel plate, are forced into the wood timbers. The grip-plate puts all timbers in the same plane, thus

*(Continued on page 74)*





## TRACTOR WINCH KEEPS SCRAPERS MOVING ON RAIN-SOAKED ROAD JOB

**Bad weather threatened to bog down scraper operations** on a particularly wet section of US 99 highway construction near Vancouver, Wash.

A Hyster winch mounted on a Caterpillar D8 Tractor soon had the job back on schedule.

**Tractor Winches are your best job insurance** because they are designed specifically to provide the tremendous pulling power needed to keep equipment on-the-move—even in the worst conditions. Hyster Winches, for example, increase pulling power up to 100% over tractor drawbar pull.

**Tractor Winches give long-reach pulling power** that can be extended the full length of the winchline—up to 400 feet. Loads in positions inaccessible to the tractor can be pulled by taking the winchline to the load while the tractor remains stationary. The load can then be winched to the desired position.

**Tractor Winches save tractor wear and tear.** Pulling an extremely heavy load with the tractor drawbar causes wear on the final drive and track assemblies. Sustained full-power operation may result in premature repairs and resulting high operating costs. Winches exert pulling power while the tractor remains stationary and cause no wear on tractor drive and track assemblies.

**Your Caterpillar-Hyster Dealer** will be glad to help you select the right winch for your job. See him today or write Hyster Company... 2921 N. E. Clackamas Street, Portland, Oregon, or 1821 N. Adams Street, Peoria, Illinois.

## HYSTER COMPANY

**"Matched Design" Tractor  
Tools for Caterpillar-built  
Tractors**



# "GRID® ROLLER COMPACTS MORE YARDS PER HOUR at lower cost per yard..."

...says John P. Abramson Construction Co.



**faster compaction with less  
fluff keeps hauling units  
moving at higher speeds...**



This portion of the fill was compacted with a Grid Roller.

This portion of the fill was compacted with another type roller.

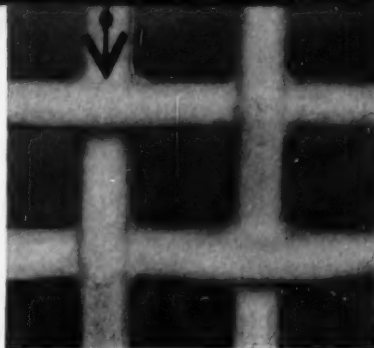
Note how the fill compacted with the Grid Roller remained firm while section compacted by other methods broke up under weight of hauling equipment.

"The Hyster Grid Roller is a good compaction tool because it gets required density at high speeds and leaves very little fluff. This allows our hauling units to maintain high speed coming on and leaving the fill. For these reasons, and its low maintenance cost, we are able to compact more yards per hour at a lower cost per yard," said John P. Abramson, John P. Abramson Construction Co., Des Moines, Iowa.

The Abramson outfit was working on airport runway extension fills. Material was clay-silt—difficult to compact. It came out of the borrow pit with 25% to 40% moisture with an optimum moisture content of approximately 18%.

The borrow pits were ripped with a Caterpillar ripper and allowed to dry before the material was moved. Further aerating was accomplished on the fill by discing and rolling with a sheepfoot roller. The Grid Roller working its assigned section of the fill achieved the required density (95% modified proctor under the runway and 90% on the sides) in 6 to 12 passes. The 8-inch lifts were rolled at speeds of 10 to 15 m.p.h. with the roller weighted to 30,000 lbs.

The Hyster Grid Roller can reduce your costs on compaction jobs. See your Caterpillar-Hyster Dealer, or write Hyster Company, 2921 N. E. Clackamas Street, Portland 8, Oregon, or 1821 N. Adams Street, Peoria 1, Illinois.

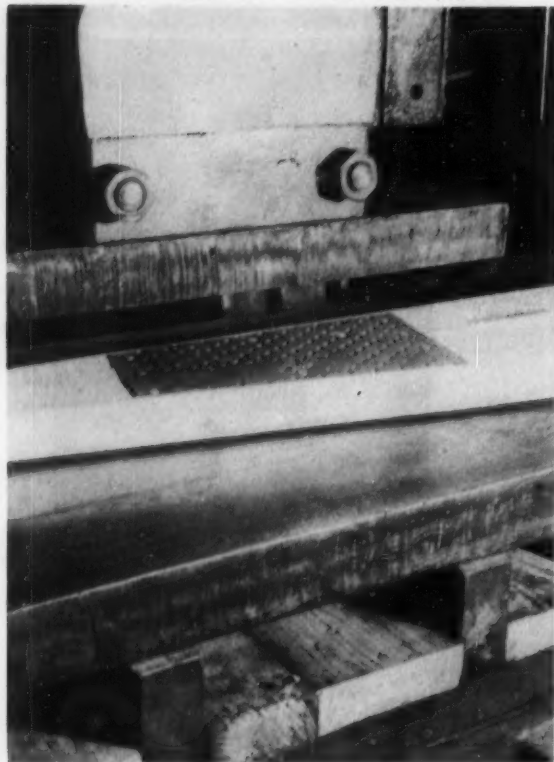


This highly efficient Grid compacts fills at higher speeds with minimum penetration and displacement of material.

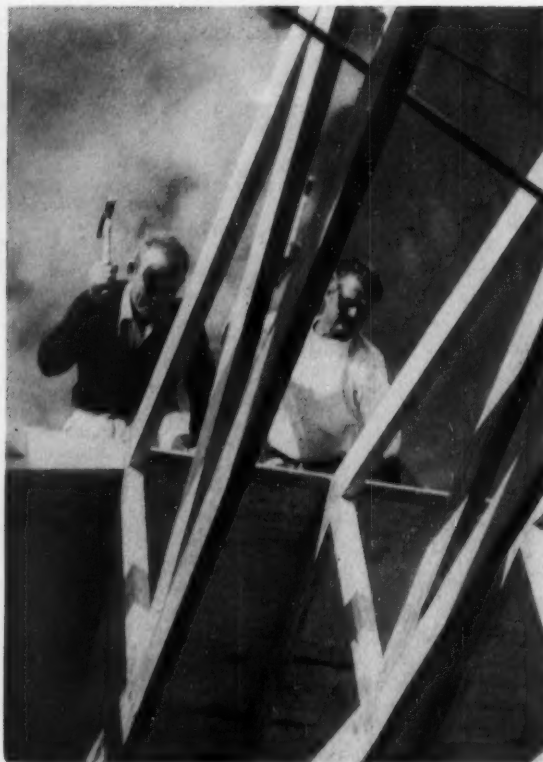
**HYSTER COMPANY**

"Matched Design" Tractor  
Tools for Caterpillar-built  
Tractors

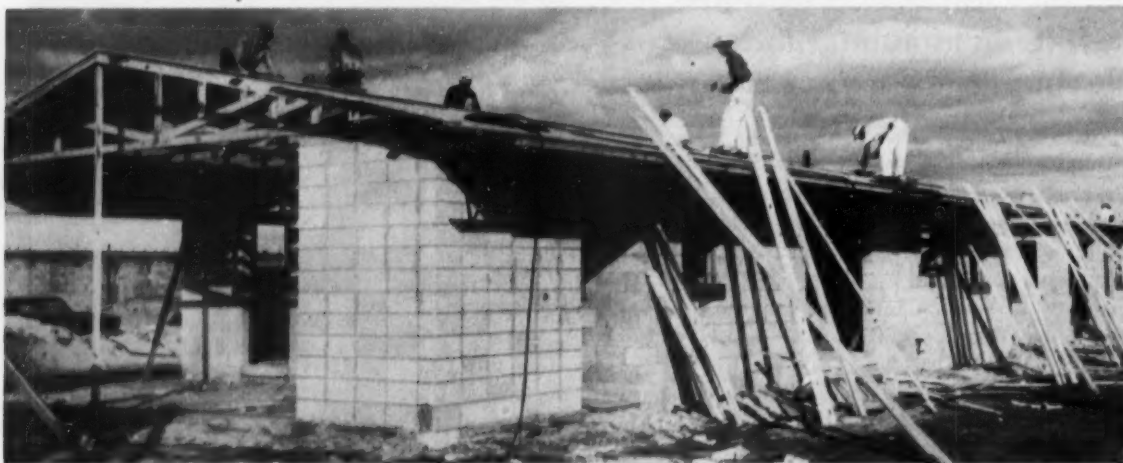




**STEEL GRIP PLATE** connects two truss members as 50-ton press forces oblique metal fingers into 2x4's. Grip plate made of electro-galvanized steel puts all members in one rigid plane.



**ROOF BOARDS** are nailed to the erected truss. With a capacity of 160 lb per sq ft, trusses weigh only 4 lb per ft, and are erected in a matter of minutes. They cost only \$13 each.



**TEAMS OF CARPENTERS** roof nearly 20 houses a day at Carol City, mammoth development near Miami, Fla. Gaines Construction Co.

is building 10,000 homes, each having an average of 1,340 sq ft of living space. Houses have overhanging eaves and jalousies.

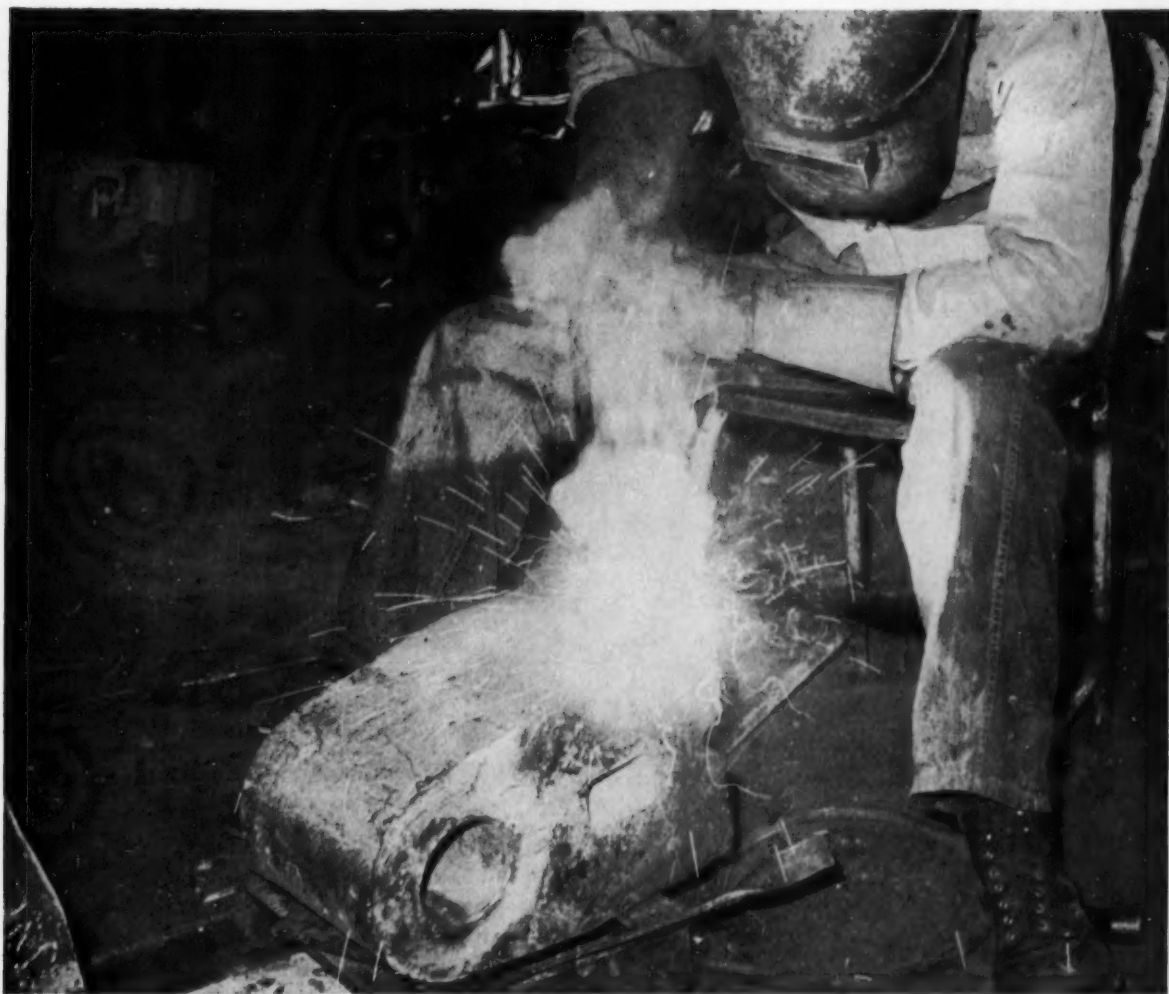
creating a rigid, uniform unit. For spans up to 26 ft 8 in. with a  $2\frac{1}{2}$  on 12 roof pitch, 2x4's are used exclusively. This alone means a substantial saving in lumber costs, as conventional construction would require much heavier timbers. The plate also makes it possible to design a truss for specific architectural needs, especially for low-

pitched roofs, common in Florida.

Each truss can handle a roof load of 160 lb per sq ft. This is about three times the school-building standards of most northern states. Trusses weigh approximately 4 lb to the ft, and the time required to hand up a truss and nail it into place is very little more than necessary to handle a single rafter

and nail it into place. In fact, three carpenters and two laborers can have a house ready for sheathing in 1 hr. Conventional framing takes three times as many men. Insurance and overhead are cut proportionately. In truss-framing it takes  $\frac{1}{3}$  less the number of nails for sheathing, since the trusses are  
(Continued on page 78)





## KING SIZE SWING HAMMERS Last 10 Times As Long With Stoody Hard-Facing

A large bauxite mill in the South crushes limestone used as a flux in the reduction of the ore. The hammer mill used here has 15 hammers to the set, each hammer weighing 300 pounds. Rotating at 750 RPM, the hammers are subjected naturally to extremely severe abrasion and impact—edges and corners are soon rounded off, resulting in greatly reduced efficiency and lowered production of properly sized aggregate. Ordinary manganese hammers operated for only one week; *as hard-faced, they now last 10 weeks!* Spare sets are available at all times for installation in the mill while the worn parts are being rebuilt.

Standard procedure now consists of bringing wearing areas back to size with Stoody Nickel Manganese, topped off with a final pass of Stoody 21. As a rule only about 12 to 15 pounds of manganese are required for rebuilding and two pounds of Stoody 21 completes the hard-facing.

Detailed information on maintenance of all types of crushing equipment is contained in the Stoody Guidebook, a copy of which you can obtain from your Stoody dealer (see the yellow pages of your telephone book) or you may write directly to Stoody Company. This famous manual is available without charge, of course.



The hammer in the foreground shows the metal loss in operation: leading edges have been completely worn away.



A hammer rebuilt and hard-faced, ready to be returned to the mill. Hammers can be reclaimed many times and service life prolonged indefinitely.

### STOODY COMPANY

11972 East Slauson Avenue  
Whittier, California



# GULF PRODUCTS



D. W. Winkelman Company, Inc., Syracuse, New York, recently completed sections C-2 and C-3 on the Ohio Turnpike, comprising 10.2 miles near Canfield, Ohio. Work involved 4,000,000 cubic yards of grading, 80,000 cubic yards of concrete paving, 18,000 cubic yards of concrete in structures, 16 bridges, 4 box culverts, and a cloverleaf interchange. Gulf products and fine delivery service helped this contractor complete the job ahead of schedule. These photographs show the progress of the job on September 1, 1954.



# *and* **FINE SERVICE**

*keep equipment rolling*

*on the Ohio Turnpike Project*

The Ohio Turnpike is another huge and important project where a large percentage of the participating contractors rely on Gulf to keep their equipment on the job and delivering top performance.

D. W. Winkelman Company, Inc., for example, knows from long experience that Gulf quality products and prompt delivery service are an unbeatable team in helping to maintain all-round smoother operation, with fewer mechanical delays and lower costs.

Let us discuss with you how Gulf products and service can help on your next job. They are quickly available to you through more than 1400 conveniently located warehouses.

**GULF OIL CORPORATION • GULF REFINING COMPANY**  
**1822 Gulf Building                      Pittsburgh 30, Pennsylvania**



THE FINEST PETROLEUM PRODUCTS FOR ALL YOUR NEEDS



MALSBARY Model 60 reaches working temperatures in two to three minutes, delivers 60 gallons of hot cleaning solution per hour, sells for only \$395 (slightly less West of Rockies).

## NOW FOR HANDY, IN-SHOP STEAM CLEANING, Malsbary 60 — Only \$395

New Malsbary 60 steam cleaner, built specifically for parts cleaning and other light work, is so small you can install it right in the shop for use on individual repair jobs.

Job studies show mechanics spend 30-40% of their working time wiping grease and muck off parts before they can get down to repair work. With the MALSBARY 60 you can eliminate this hand wiping. Mechanics can use it right at their jobs to quickly steam clean away grease, oil and dirt as they go about their regular repair work.

Malsbary 60 is nozzle controlled, simple as a wrench to use. Mechanics can pick up cleaning gun, have hot solution instantly, because burner goes on instant cleaning nozzle valve is opened; shuts off automatically when valve is closed. There's no running back and forth to start and stop flow of cleaning solution; no carrying of parts to special cleaning area. You quickly save the \$395 cost in mechanics' time alone.

Malsbary 60 works directly off any water main where water pressure is 60 pounds or more...without using a pump. For those few areas where water main pressure is below 60 pounds, MALSBARY makes available a pump and motor assembly which adds 50 p.s.i. to water main pressure. Thus, if pressure from main is 40 p.s.i., you get a 90-pound cleaning stream by using this pump. Pump and motor assembly, ready to bolt to cleaner, \$90 delivered.

Burner uses low pressure natural gas, butane, propane or manufactured gas. Special safety control automatically shuts off burner if water flow is interrupted.

Ask your jobber to install at least one Malsbary 60 in your shop NOW... prove to yourself how it saves mechanics' time.



Room C4, 845-92nd Ave., Oakland 3, Calif.

### PREFAB ROOF TRUSSES . . .

Continued from page 74

placed 24 in. on center, and the conventional rafters are 16 in. on center.

In truss-framing there is no waste of lumber. Each truss is load-bearing or self-supporting in itself—therefore the complete roof is load-bearing all over. There is more flexibility in the arrangement of partitions, as each partition is merely a curtain wall, and there is no bearing partition.

In large-scale developments such as Carol City, the truss size and weight adapts itself to assembly-line techniques. Gaines uses a 130-ton tractor-trailer combination with a hydraulic crane. Trusses enough for one house are loaded on a Rogers trailer by lift-truck. On the job the Pitman crane swings the trusses into place on top of the already completed walls. This makes it possible to roof the house quickly, protect the tile floors from elements, and keep production moving.

#### Cost Only \$7 per Sq Ft

At the present time most of the production comes from the Truss-Mart plant of Gaines Construction Company in Miami. Sanford also has licensees in Boca Raton, Fla., and Dayton, Ohio.

Gaines reports that he can construct 17 concrete block Sanford-truss houses a day at a cost of only \$7 per sq. ft.


### How To Save a Buck In 100 Different Ways

A handy booklet for cost-conscious construction contractors, "100 Ways to Save a Buck" is an illustrated reprint of a talk by John A. Volpe, president of Volpe Construction Co., Malden, Mass., made at the 39th National Safety Congress. Main features of the talk were included in a three-part article published in CM&E, beginning Dec. 1951.


The booklet shows the accident prevention program of Mr. Volpe's firm and illustrates the many ways in which safety pays off in dollars saved. Also included is a brief ten-point construction safety program for contractors.

Single copies of the booklet are available on request from the Nation Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

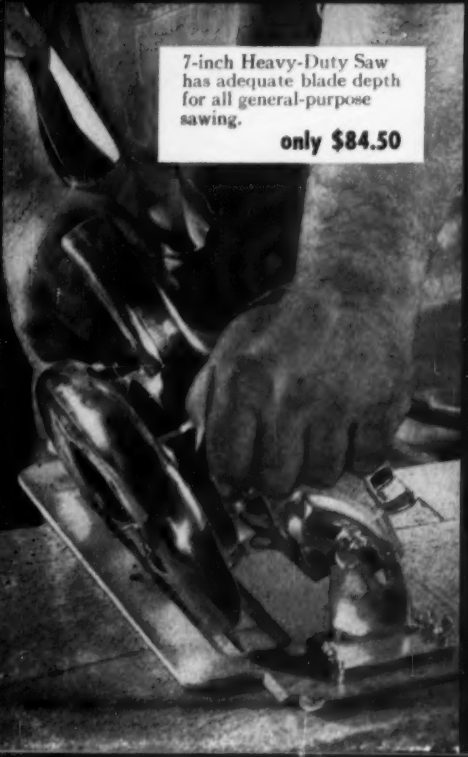





9-inch Heavy-Duty B&D  
Saw. Most power-packed  
for even the toughest jobs.  
**only \$114.50**



Plenty of power with this  
6-inch Heavy-Duty Saw to  
make wide variety of cuts!  
**only \$64.50**



7-inch Heavy-Duty Saw  
has adequate blade depth  
for all general-purpose  
sawing.  
**only \$84.50**

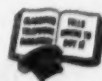


This Black & Decker 8-inch  
Heavy-Duty Saw will do  
almost every sawing job on  
big construction projects.  
**only \$96.50**

## Make light work of heavy construction sawing

What do you want in a portable electric saw? Power? Durability? Versatility? Fast adjustment? Safety? You get 'em all in Black & Decker Saws! B&D-built motors pack these saws with power. Saws are sturdily constructed for continuous, trouble-free, heavy-duty operation. They make all types of cuts in almost all building ma-

terials. Adjust quickly and easily. And they have all of the latest safety features. Try 'em yourself. See your Black & Decker distributor for demonstration. Also write for full information to: THE BLACK & DECKER MFG. CO., Dept. 2604, Towson 4, Maryland.



For nearest distributor,  
see "Tool-Electric."

LEADING DISTRIBUTORS EVERYWHERE SELL



# Black & Decker®

PORTABLE ELECTRIC TOOLS



# Tiger Brand is the



## Rope Bridge For A Pipeline

This unique suspension bridge on the Atchafalaya River near Melville, Louisiana, carries two 30" lines on the main line of Transcontinental Gas Pipe Line Corporation. With the exception of the towers the entire structure is made of galvanized Tiger Brand Wire Rope. Rope is used not only to suspend the two pipes but also to stiffen them horizontally to resist wind loads. Approximately 20 miles of rope were used in this bridge and every inch of it is Tiger Brand because of Tiger Brand's known high quality and dependability.

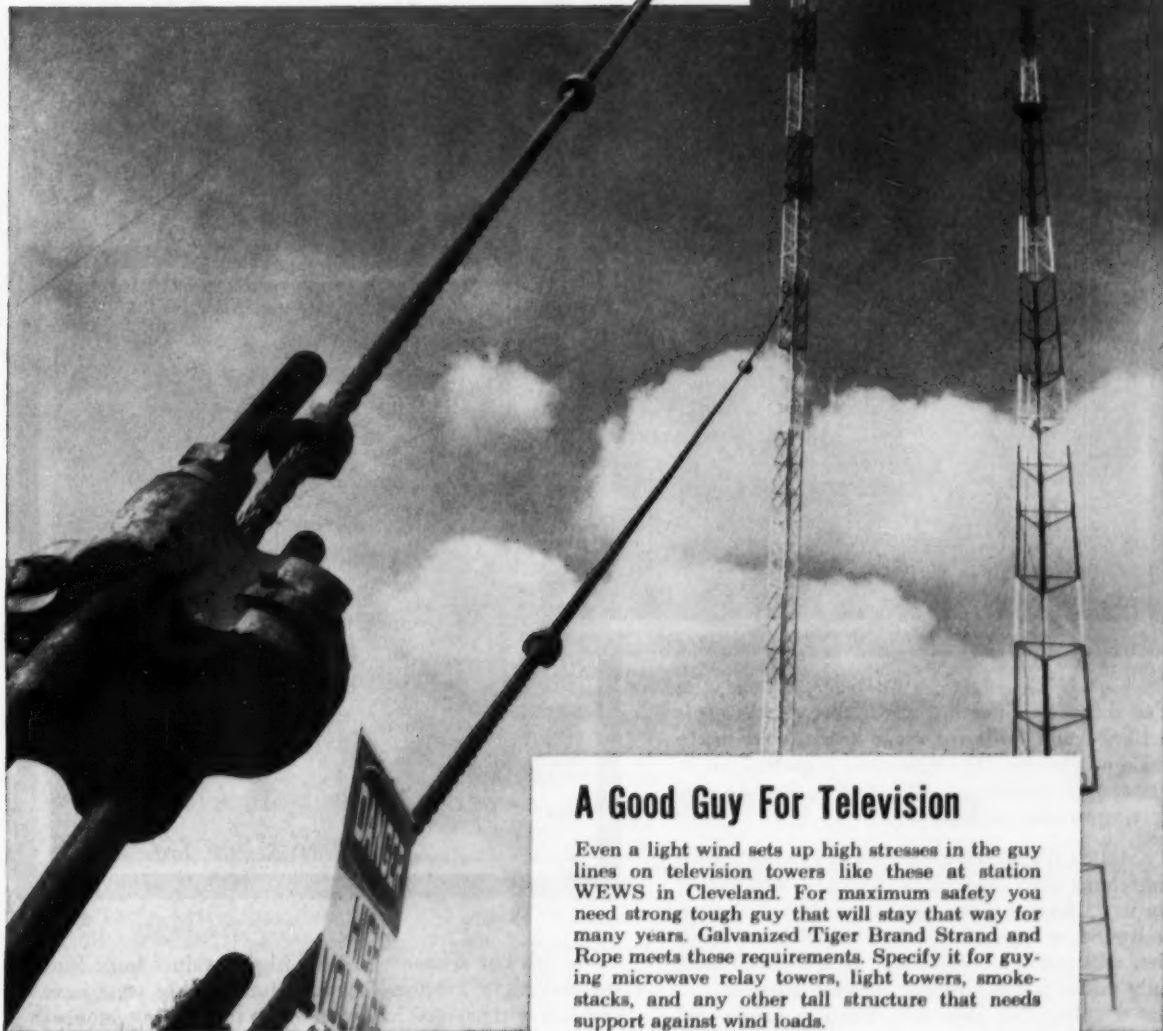
The Right  
Tiger Brand Rope  
will do the trick!



## On Any Job

Hundreds of combinations of strengths, sizes, constructions, lays, and steels are available in the complete line of Tiger Brand Wire Ropes. As a result, you can get a Tiger Brand Rope to suit every lifting job you will ever encounter—and you can depend on its performance. Tiger Brand has proved in actual service that it lasts long. Get in touch with your local Tiger Brand Distributor next time you need dependable wire rope.

# RIGHT Rope for these jobs...



## A Good Guy For Television

Even a light wind sets up high stresses in the guy lines on television towers like these at station WEWS in Cleveland. For maximum safety you need strong tough guy that will stay that way for many years. Galvanized Tiger Brand Strand and Rope meets these requirements. Specify it for guying microwave relay towers, light towers, smokestacks, and any other tall structure that needs support against wind loads.

### AMERICAN STEEL & WIRE DIVISION

UNITED STATES STEEL, GENERAL OFFICES: CLEVELAND, OHIO

COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS  
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

## USS AMERICAN TIGER BRAND WIRE ROPE

*Excellay Reformed*



UNITED STATES STEEL

*...not just a conversion*

## DESIGNED and BUILT for

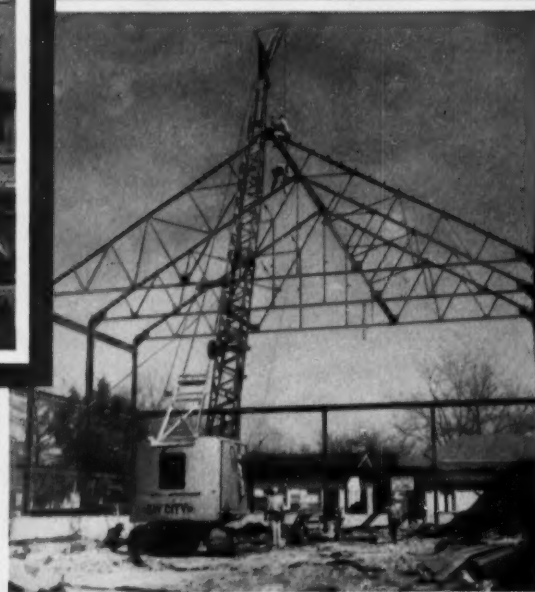
## CRANE WORK

*...there is a difference*



Yes, there is a difference in whether your crane is designed and built for crane work or is just a change in booms. The difference is spelled out in better performance on all crane work from pile driving to steel setting.

The BAY CITY MODEL 450 Erectors Crane, shown here, has a rated capacity of 15 tons... will handle up to 75 feet of boom, including jib... has an independent worm and worm wheel boom hoist that will raise or lower boom, or boom and load, only under power through separate clutches... has a collapsible hi-gantry, floating bridle and pendant cable boom tension system, plus tandem drums with the hoist drum capable of wrapping up to 862 feet of  $\frac{3}{8}$ " cable.



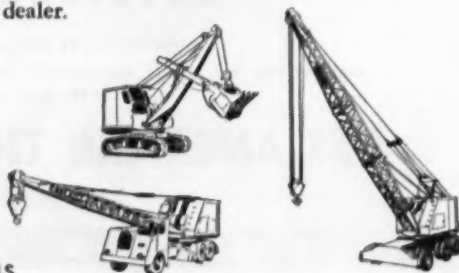
These are but a handful of the bigger values built into the BAY CITY Erectors Crane. Before buying your next crane, it will pay you to look into the time-saving, money-saving possibilities of a BAY CITY. Write for complete information or see our nearest dealer.

BAY CITY SHOVELS, INC. • BAY CITY, MICHIGAN

# BAY CITY

251

SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS



# Revibration Boosts Quality of Concrete

REVIBRATING CONCRETE just before it reaches its initial set can produce many benefits. It not only makes concrete stronger, denser, and more uniform, but also increases bond and removes air and water pockets both inside and on the surface.

Although revibration is effective in ordinary concrete, it performs even better when the set is retarded. By assuring adequate time for revibration, retarded concrete yields a substantial gain both in uniformity and in 28-day compressive strength.

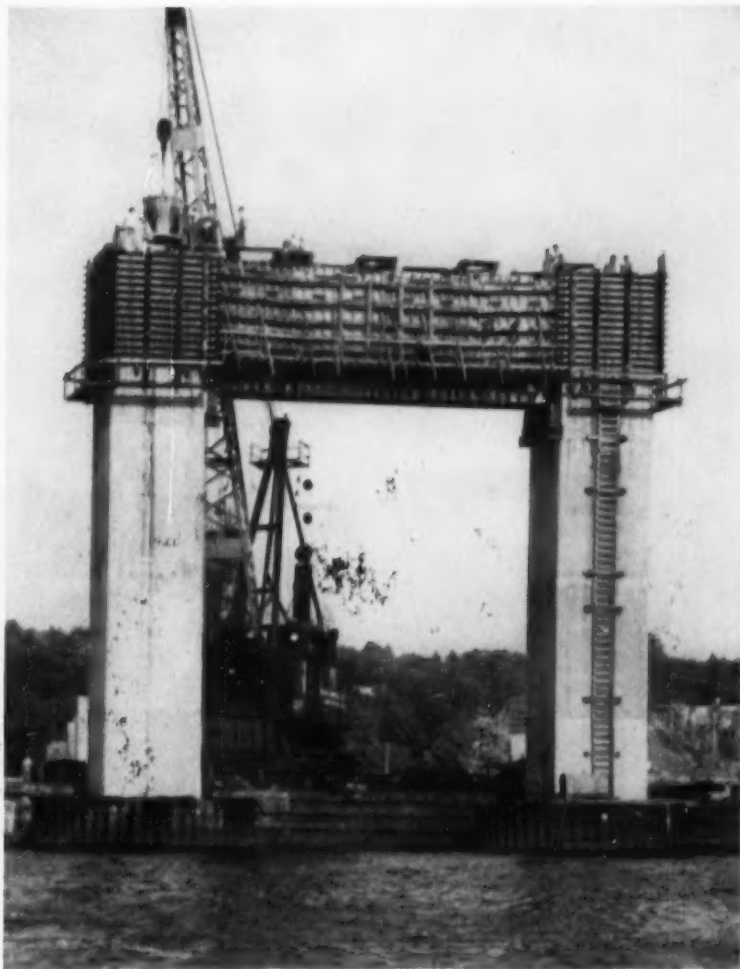
Biggest application so far is on the huge Tappan Zee Bridge on the New York Thruway. All concrete in the buoyant boxes, the piers, and the spandrels was retarded and revibrated, and it required little extra effort by the contractors. The buoyant boxes, which support the main spans, were built by Corbetta Construction Co. and the substructure by Merritt-Chapman and Scott Corp., both of New York. Madigan-Hyland was the consulting engineer.

Revibration played an important role in the construction of the buoyant boxes because watertight concrete was a prime requirement. At the bridge site, pedestals and spandrels were also improved by the new method.

## Buoyant Boxes

But before the pedestals could be built, a lot of tricky handling of the buoyant boxes had to be done. Because of the shallow channel near the precasting site, the buoyant boxes were floated downstream with only 30 ft of the 40-ft height poured. The remaining section was to be poured in place. Each 30-ft high box, however, drew 26 ft of water at the site. And by the time the monolithic pour of the top section had been completed, the box would have settled enough to immerse the bottom 16 in. of the pour in water.

The engineers decided to have the 7½-ft pour made in three 2½-ft lifts with the middle and top



SPANDREL BEAM on New York's Tappan Zee Bridge is poured in four 3-ft lifts. To prevent cracking in bottom surface as concrete is placed in higher lifts, entire mass is kept fluid with a retarder. The full depth is then revibrated, producing smooth surfaces.

lift thoroughly revibrated and integrated into the first lift and each other.

Using 1 lb of Plastiment retarder per sack, workmen placed 240 cu yd over a 2½-ft lift in 6 hr. The second lift was started immediately and required another 6 hr, ending at 9 pm. The concrete in this course was made with 2 lb of retarder per sack. Homelite electric vibrators were allowed to seek their own depth into the first pour, which had been placed 6 to 7 hr previous. The bottom was still above water level.

Crews returned to the job the next day to find the top of the second pour still plastic and the bottom of the first setting up as planned. During the next shift, the top lift, with 1 lb of retarder per sack, brought the wall to its full 7½-ft height. Right behind the buckets, the vibrators were intro-

duced into the concrete, penetrating to various depths into the previous day's concrete. When the pour was completed, 762 cu yd of concrete had been placed, and half of the first course was under water, set up and watertight.

Another example of the benefits of revibration was in the huge spandrel beam pours which cap the concrete towers. These beams were 12 ft deep, contained 250 cu yd of monolithic concrete, and were bonded mechanically to each tower. Without retarding or revibrating, the bottom course would have hardened early and could have developed cracks under the increasing load. Therefore, retarded concrete was placed in 3-ft lifts over the full 12-ft depth. After the 7-hr placement period, the entire beam was still fluid and could be revibrated right down to the bot-

*(Continued on page 86)*





**GARDEN STATE PARKWAY**, New Jersey's contribution to the superhighway system in the East, is rapidly nearing completion, with most of its 164 miles already open for travel. One of the contractors working on the last leg of this road is Public Constructors, Inc., of Pleasantville, New York. Two of their AD-40 motor graders are maintaining haul roads from borrow pits as well as roadbeds for Allis-Chalmers Motor Scrapers during fill operations. High-arch front axle, **ROLL-AWAY** moldboard and ample throat clearance allow these big graders to handle 30 percent bigger loads without disturbing the free, rolling movement of material.

ROLL-AWAY is an Allis-Chalmers trademark.



THE TURNER TURNPIKE saves travelers almost an hour on its 88-mile stretch between Oklahoma City and Tulsa, Oklahoma. Maximum grades of 3 percent, 200 to 400-ft right-of-ways, 12-ft paved shoulders and long sweeping curves make the drive easier and safer, too. Contractor M. E. Gillioz, Monette, Missouri, added an AD-40 to his other Allis-Chalmers equipment when he was awarded contracts for clearing grading, and culvert work on the new road. Now, he and his operators know firsthand why the AD-40 gets so much work done so quickly. Tough, rugged construction with tubular, single-member frame and clear, unobstructed visibility that helped operators see more and do more helped Gillioz decide to make the AD-40 grader a regular member of his spread.



THE KENTUCKY TOLL ROAD will be a four-lane divided highway with two 12-ft strips running in each direction for the 40 miles between Louisville and Elizabethtown. Four-foot surfaced inner shoulders and ten-foot surfaced outer shoulders will add to the many safety features of the new road which also includes vertical separation of all intersecting highways and railroads. Traylor Brothers Contracting Company of Evansville, Indiana, is operating six AD-40 motor graders, maintaining haul roads and leveling fill on their contract for this new road. This grader's powerful engine and its ROLL-AWAY moldboard team up for top production shift after shift, day after day, year after year.

## ALLIS-CHALMERS HEAVY-DUTY AD-40 MOTOR GRADERS...

# Set the Standards on the Turnpikes

*From the construction of superhighways to the maintenance of farm-to-market roads . . . wherever motor grader performance and dependability count, you'll find Allis-Chalmers AD-40's in the thick of the action. It will pay you to consider putting the job-proved AD-40 grader in your spread, too . . . see your Allis-Chalmers dealer.*

# ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.



THE SCHUYLKILL EXPRESSWAY will link with the eastern section of the Pennsylvania Turnpike by bridge across the Delaware River in South Philadelphia. Conduit and Foundation Corp., of Philadelphia, is working on part of this job for the Pennsylvania Highway and Bridge Authority and is using two Allis-Chalmers AD-40 Motor Graders in their spread. The machine shown here is working between forms, grading the base course before a strip of 10-in. reinforced concrete surface pavement is laid. The AD-40's mechanical blade control linkage gives the operator the "feel" of the work on a job like this. Tandem drive traction and shock-absorbing frame add to stability, help prevent blade chatter on precision grading.

SIXTH IN A SERIES OF ARTICLES ON COMMON MAINTENANCE PROBLEMS.

## ARE ACIDS REDUCING YOUR ENGINE LIFE?

The combustion chamber of a Diesel Engine is similar to a chemical plant that manufactures corrosive acids. Both sulphur dioxide ( $\text{SO}_2$ ) and water vapor ( $\text{H}_2\text{O}$ ) are by-products of fuel combustion. The high temperatures and pressures which prevail in the combustion chamber are ideal conditions for a reaction of these two compounds forming sulphuric acid ( $\text{H}_2\text{SO}_4$ ). This corrosive compound attacks pistons, rings and cylinder liners. Eventually it mixes with the oil through the wiping action of the piston rings and, to a lesser degree, through blow-by. The corrosive action of these acids often causes even more wear than friction itself. The more sulphur in fuel, the greater amount of acids formed in the combustion chamber.

Originally all oils were manufactured to be neutral. Due to the absorption of acids formed during combustion, these oils became progressively more acid. In fact, when the acidity of an oil reached a certain point, this alone was sufficient reason to drain the oil. Under these circumstances, high engine wear often resulted.

There are now available on the market engine lubricating oils that can counteract this corrosive wear. These oils are alkaline in nature and form a protective coat-

ing over engine parts. This enables the oil to neutralize the acids before they can cause damage. Some oils have sufficient alkalinity reserve to maintain this neutralization throughout the entire oil change period, while others do not.

Thus the importance of knowing the sulphur content of the fuel being used becomes apparent. This can easily be determined by a competent petroleum laboratory. If you feel combustion chamber acids are reducing your engine life, an alkaline oil designed to counteract this problem should be selected. It is a matter of record that long engine life can be obtained, even with high sulphur fuels, when the appropriate engine oil is being used.

D-A Lubricant Company has been solving similar problems for equipment owners, and offering personalized service—including complete laboratory analysis where required. This added service, combined with D-A's quality products designed especially for the heavy-duty field, provides the best protection you can have against costly breakdowns and parts bills.

• • •

D-A lubricants are sold and serviced from coast to coast. Write for the name of the D-A representative nearest you.



**D-A LUBRICANT  
COMPANY, INC.**  
Indianapolis 23, Indiana

SPECIALISTS IN HEAVY-DUTY LUBRICATION SINCE 1923

## REVIBRATION . . .

Continued from page 83

tom. The results were outstanding. Surfaces were completely free of cracks, and tests showed that the concrete had reached a high degree of uniformity.

Research is now being conducted by several firms and agencies to develop new applications for revibration.

## King-Size Safety Message

If you're really interested in reminding your employees about the advantages of practicing safety, the National Safety Council has added giant-size accident prevention banners to its long list of safety aids. The banners come in two brilliant colors, 10 ft long and 3 1/2 ft deep.

They are available either for indoor or outdoor display. The indoor style is made of heavy display duck and has eight metal grommets for ease in mounting. The outdoor style is made of extra heavy-duty duck, weatherproofed and vented, and has full length ropes stitched in top and bottom for secure fastening. Both styles are the same size and are printed in signboard inks that are guaranteed against fading for a minimum of 30 days.

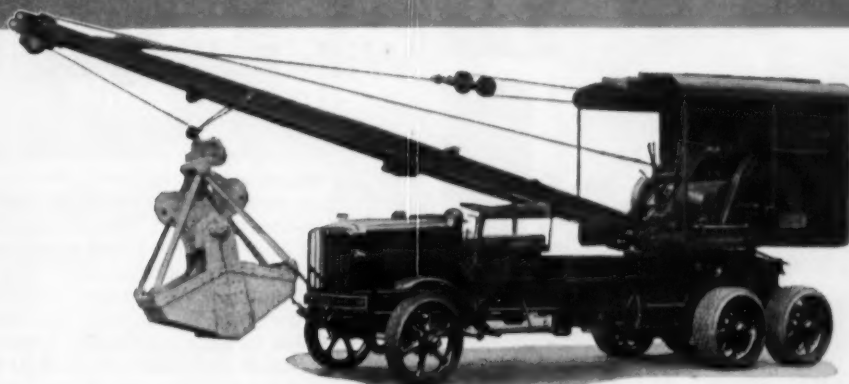
The banners, 12 in all, are available on an annual subscription basis. Each new banner is shipped by the 15th of the month preceding its scheduled use.

If you'd like a descriptive piece of literature showing the banners in full color, plus prices, write the National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

**MEL ONHEAD** He'll lose a  
there's one THUMB  
on every Job! it's plain to see...  
now just how **DUMB** can this guy be?



**do you remember . . .**



**this 1927 crane carrier . . .**

Hendrickson designed and built this special crane carrier, double-drive with extra wide solid tires (one of the first factory produced jobs in the country), which carried a 7½ ton Universal Crane . . . delivered April 1927.

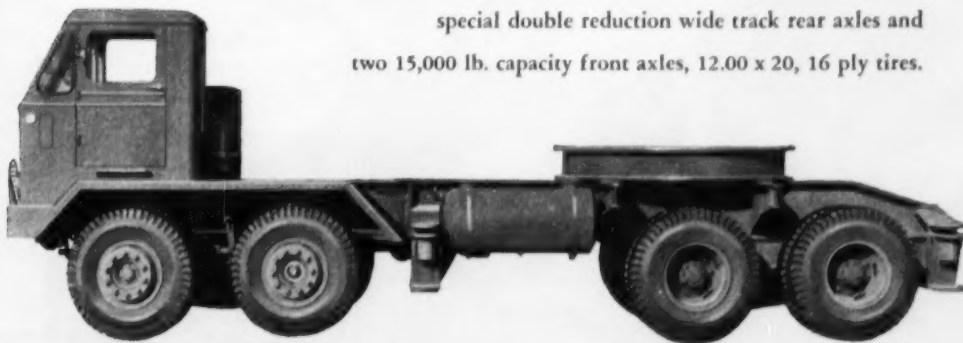
**today HENDRICKSON builds . . .**

a complete line of crane carriers, 10 to 50 tons capacity.

This Hendrickson Model 535 (8 wheeler), 35 ton 8 x 4 has Hendrickson's

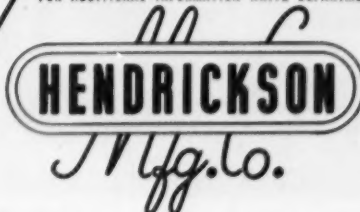
special double reduction wide track rear axles and

two 15,000 lb. capacity front axles, 12.00 x 20, 16 ply tires.



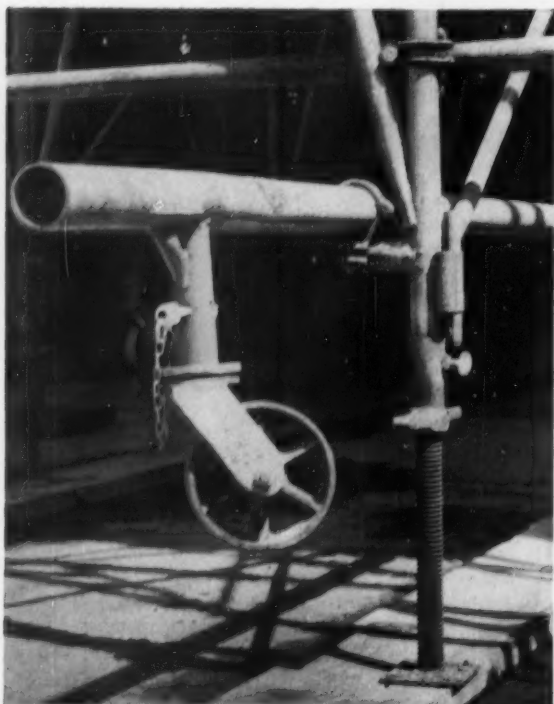
Featuring the Hendrickson Tandem which permits the load to be evenly distributed over the 4 wheels—*steadiest thru the swing.*

FOR ADDITIONAL INFORMATION WRITE DEPARTMENT B



8001 WEST FORTY-SEVENTH STREET  
LYONS (CHICAGO SUBURB) ILLINOIS





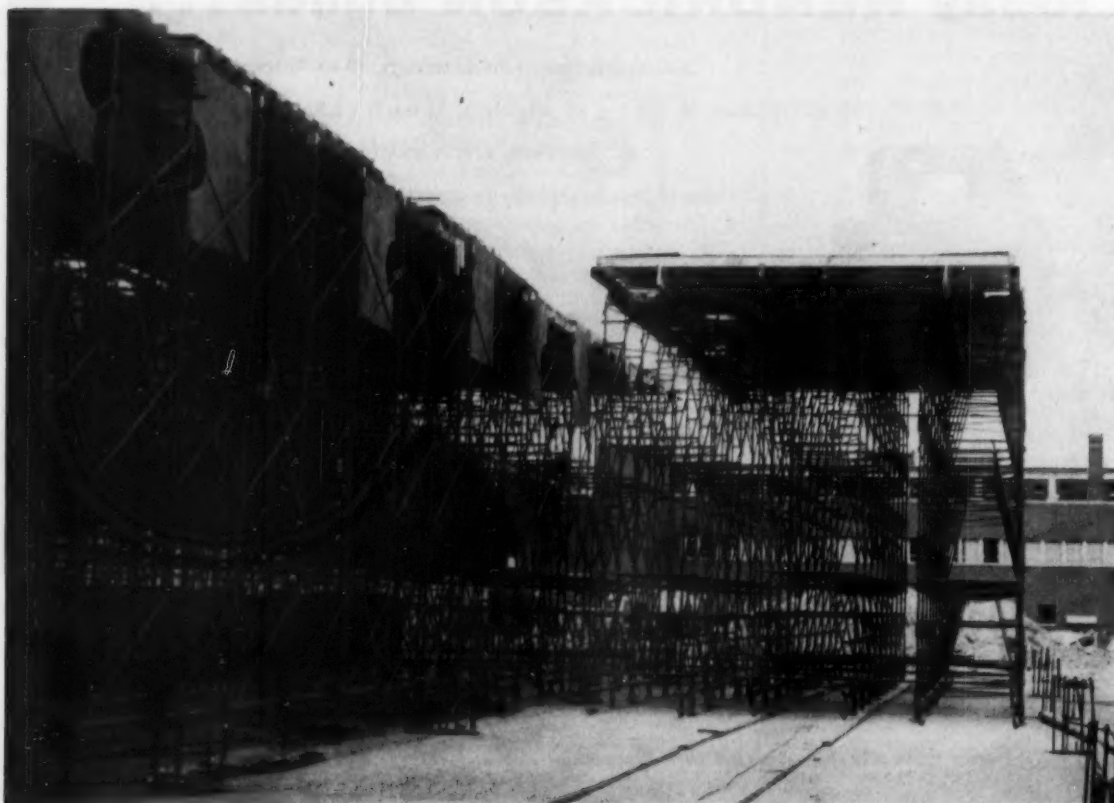
SCREW JACK mounted as an integral part of the scaffold allowed the forms to be lowered on to caster wheels and moved about the site as necessary; also provided precise form positioning.

## Two Contractors Lick Shoring Problem With Rolling Scaffolds

SHORING WITH mobile steel scaffolds eliminates time-consuming operations of knocking down and re-erecting shores after each pour. Within the last few months two contractors in widely separated locations, the Mellon-Stuart Co., in Pittsburgh and C. L. Peck, Inc., in Los Angeles, have found this to be the answer to a knotty shoring problem.

Mellon-Stuart, with a contract to build a new warehouse for the Western Electric Co., used Universal steel scaffolds to pour a 250x400-ft second floor slab, and a 125x400-ft roof slab. Because of the repetitive character of the building throughout, the forms were to be reused, so they were assembled in two-bay units, each 50x25 ft supported by a scaffold composed of 90 Universal Ezibilt frames. Forms around the drop slabs and column caps were parted on the center line and were hinged down to permit column clearance. After the 8½-in. slab was poured and cured, runners bearing 36 4-in. casters were added to each section and the scaffold lowered on to them by screw jacks integral with the scaffold. Each scaffold was then towed

(Continued on page 91)



FORM AND SCAFFOLD UNIT for two 25-ft sq bays of floor slab just removed from position by tractor, stands ready on 36 4-in.

casters to be rolled into position for another pour after cleaning and oiling, with only minor alterations.

**Where can you get  
a sling like this?**

**More strength  
at lower cost**

**—with *JalKlump***



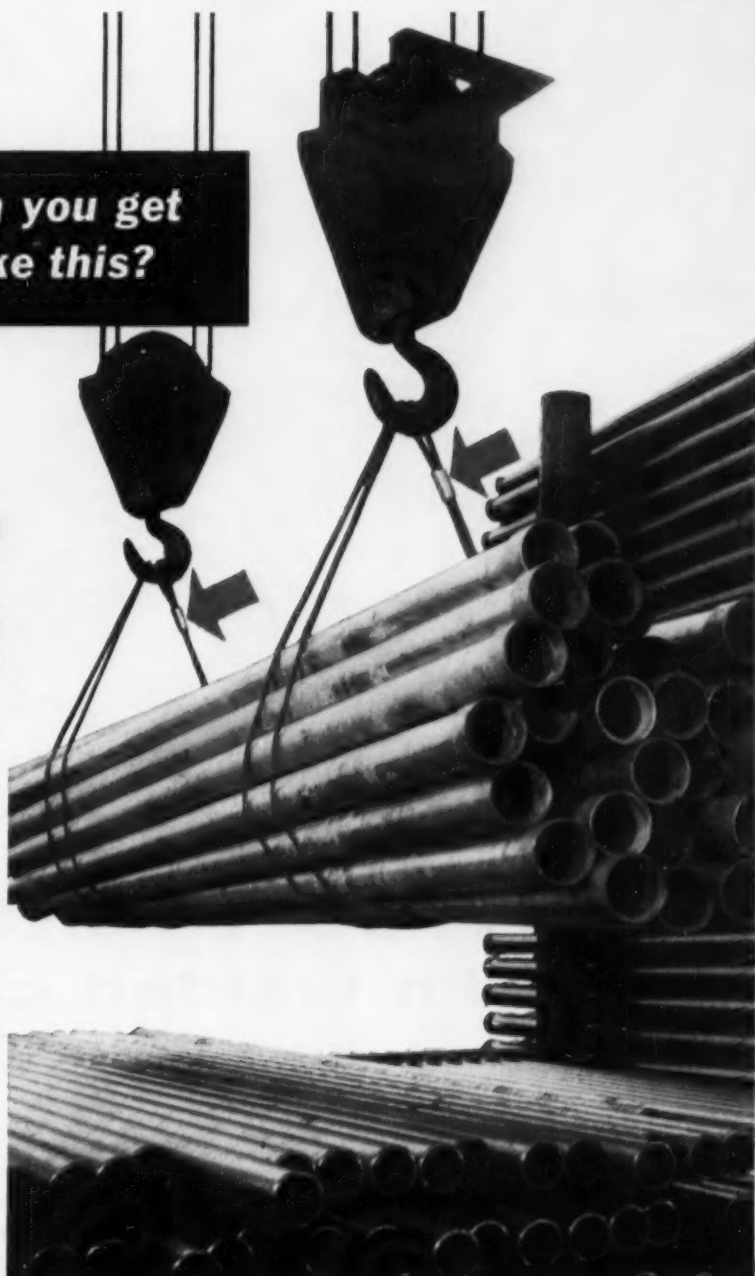
Now J&L can furnish safer, stronger wire rope slings and terminals at lower cost thanks to JalKlump, the new sleeve for wire rope splicing, exclusive with J&L.

The reason: Non-corrosive JalKlumps are made from a special alloy. When hydraulically pressed around the rope, the alloy flows into the spaces between the wires and strands . . . produces a neat, permanent, watertight splice that's stronger than any tucked splice. And because they're machine made, JalKlump splices cost less.

JalKlump slings and terminals are available for all standard wire rope constructions and in diameters ranging from 1/8" through 2", with SpringKore, PlastiKore, Fiber Core, and Independent Wire Rope Centers.

Specify JalKlump slings and terminals and get these features:

- |                  |                                    |
|------------------|------------------------------------|
| 1. High Strength | 4. Water Tight                     |
| 2. Economy       | 5. Permanent                       |
| 3. Non-Corrosive | 6. Neat, Safe, —<br>no jagged ends |



Jones & Laughlin Steel Corporation  
437 Gateway Center, Pittsburgh 30, Pa.

☐ Please send me a free copy of your  
JalKlump booklet.

Name \_\_\_\_\_  
Title \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_  
State \_\_\_\_\_

**J&L  
STEEL**



***Jones & Laughlin***  
STEEL CORPORATION — Pittsburgh



P&H Model 655-B; 1½-yd. capacity. P&H builds the world's most complete line of Power Cranes and Shovels.

**P&H**

## ...20 YEARS AHEAD with welded construction!

Think of it! . . . 20 years ago P&H threw out the old patterns to give you a new and better kind of power shovel — *completely welded of rolled alloy steels!*

Twenty successful years in the field have proved beyond all doubt the advantages you gain through greater strength and the elimination of dead weight. Today's P&H machines give you faster cycles, still more dependable service — still lower yardage costs. Behind today's

machines is P&H's long experience in welded design and construction — still 20 years ahead of the field.

All-welded construction is only one of many major improvements originated by P&H. There are others that will earn you more money than is possible with older style machines you may now be using. Get the facts from your nearest P&H dealer. P&H Power Crane and Shovel Division, Harnischfeger Corporation, Milwaukee 46, Wis.

# HARNISCHFEGER

— See your **P&H** dealer —

"Your P&H Dealer has the experience, the organization and the facilities to serve you reliably in every way. He's ready to deliver the

kind of on-the-ground service that keeps your jobs moving on schedule. Your P&H Dealer is tops in the business. Get to know him."

the **P&H** Line



TRUCK CRANES



DIESEL ENGINES



POWER SHOVELS



PREFABRICATED HOMES



HOISTS



SOIL STABILIZERS

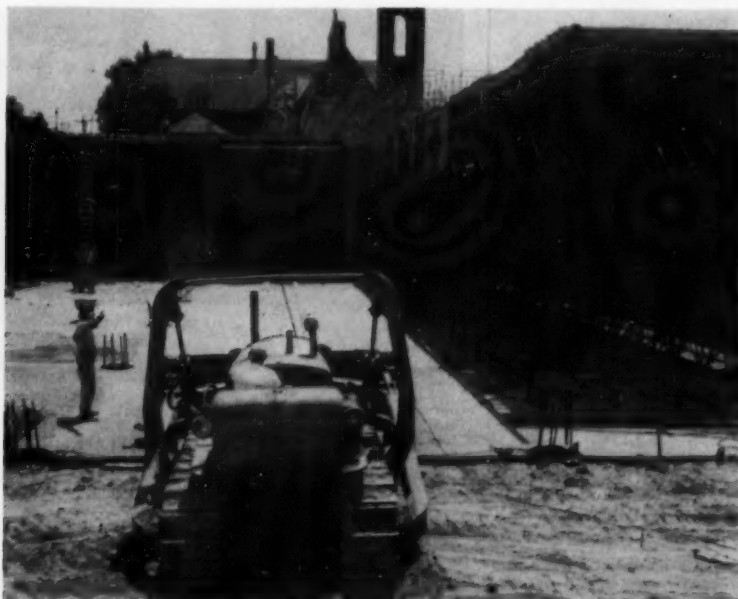


WELDING EQUIPMENT

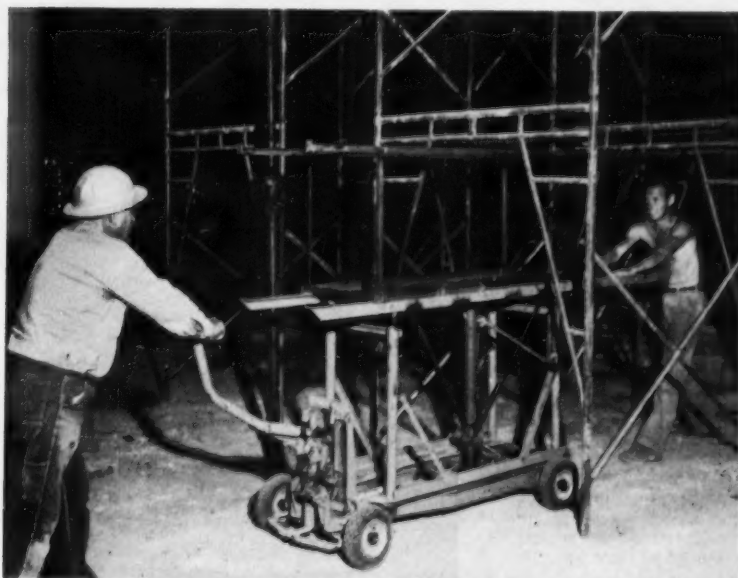


OVERHEAD CRANES





WITH CASTERS ATTACHED, form and scaffold unit is being removed from under cured slab and towed into position by line from tractor for preparation of next pour.



WHERE BUILDING LAYOUT does not allow the economical use of unit form and scaffold, mobile scaffold may still contribute to job efficiency by allowing shore reuse.

by a tractor to its new position with forms intact.

The placement of the second-floor slab required four complete movements of the 112x250-ft by 22½-ft high shoring system, after which the scaffolds were knocked down and reassembled atop the second floor for the roof pour.

#### Moves Scaffold With Dolly

C. L. Peck Inc., general contractor on the Broadway-Hale Department Stores Service Building in

Los Angeles, was not so fortunate. Building layout would not allow him to establish a reusable form and scaffold unit, as Mellon-Stuart had. He did make a substantial simplification of his shoring operation, however, in the placement of the 6 acres of slab in the 380x730-ft building by using the Patent Scaffolding Co.'s Trouble Saver Scaffold as a shoring unit. This he moved with a rubber-tired dolly hydraulic hoist instead of disassembling and moving it by hand.

## Model PO Air-Actuated CLUTCHES

provide

**REMOTE CONTROL** without complicated linkage.

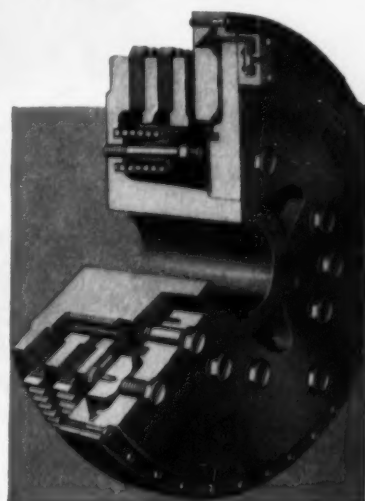
**HIGHER TORQUE CAPACITY** (with slippage capacities up to 120,000 lbs. ft.).

**LESS WEIGHT, NARROWER WIDTH**—permitting more compact installations with lower initial costs, and use of air-actuated clutches where drum or band-style clutches previously have been used.

**FASTER, SMOOTHER OPERATION** with positive air-sealing under all conditions; featuring fully-supported, no-stretch construction . . . extra-long stroke, and controlled flexing is provided by the exclusive Twin Disc diaphragm.

**POSITIVE, QUICK RELEASE** . . . no seal-drag . . . built in pressure release valves.

**INVESTIGATE** Twin Disc Model PO Air-Actuated Clutches for designing into new equipment, or for modernizing older models . . . write today for new Bulletin 304!



TWIN DISC CLUTCH COMPANY, Racine, Wisconsin  
Hydraulic Division, Rockford, Illinois





Model C-250  
25 H.P. Optional  
Self-Propelled.  
A Clipper Model  
to fit Every Budget  
Priced from \$395



For Best  
Results

#### CLIPPER "GREENCON"

Savings you never dreamed of—up to 80%! The original Reinforced Abrasive Blade that knifes through green concrete with aggregate of limestone, coral, or steel mill slag. "Try them on your next job."

#### CLIPPER DIAMOND

A Blade for any job—any aggregate—every saw! Choose your Clipper Diamond Blades from a wide variety of specifications to cut green or old concrete with outstanding speed and economy.

By the Makers of Clipper Masonry Saws



KANSAS CITY, MO.

Genuine Clipper Products Are Sold Only Direct. Immediate Shipment from Factory Branches in Principal Cities, Coast to Coast. Mail Coupon for Same-Day Service.



Better  
Mail the  
Coupon  
NOW!

# NOW-SEE WHY You Cut More Concrete

with  
*Clipper*  
MADE RIGHT THRU  
**CONCRETE SAWS**

## --LOOK INSIDE

Behind Engine...

Under Frame...

for Famous...

CLIPPER QUALITY

plus 5 of the

EXCLUSIVE

FEATURES

THAT

GIVE YOU

LOWEST

CUTTING

COST

PER FOOT!

ASK FOR  
**FREE**  
DEMONSTRATION  
ON YOUR JOB

## LOOK AT THESE 5 FEATURES

- 1 4 Wheels with 3-Point No-Bind Blade Suspension
- 2 Self-Propelled with Abrasive-Coated Drive Wheels
- 3 Positive Screw Feed
- 4 Patented Water Application
- 5 Dashboard Controls

Send Coupon for the Whole Story

### CLIPPER MANUFACTURING CO.

2809 W. Warwick • Kansas City 8, Mo.

- ☐ I want a FREE DEMONSTRATION of a Clipper Concrete Saw.  
☐ Send FREE Literature on Clipper Concrete Saws.

- ☐ Send full information on Clipper Concrete Blades.

401X

- ☐ Have a Clipper representative call on me

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

**NOW-SEE WHY  
4 Out of 5 Buy**

**Clipper**  
SALES RIGHT THRU  
**MASONRY SAWS**

**FOR  
Best Performance  
Demand the Saw  
with All  
These Features:**

- ① **Select-A-Notch**—Easy one-man height adjustment for cutting any size masonry material. Patented.
- ② **Pressure Equalizer Spring**—Cushions blade pressure and makes your blades last longer. Patented.
- ③ **Wet-or-Dry Pump**—With Patented Water Application supplies water to the cutting edge, where it should be.
- ④ **Adjust-A-Cut**—Frees the Cutting Head for finger-tip control at any desired height.
- ⑤ **Head-Lock**—Turn the handle to hold Cutting Head—for fixed Diamond Blade cutting.

**ORDER YOUR CLIPPER  
MASONRY SAW ON FREE TRIAL**

Send Coupon for the Whole Story



Model HD  
Wet or Dry Cutting.  
A Model to fit every budget,  
priced from \$265

**Clipper  
BLADES**

**CUT ALL  
MATERIALS!**

• **"Polk-A-Dot"—A CLIPPER FIRST!**

New Triple-Reinforced "CBR" Abrasive Blades—in specifications for EVERY material, Hard to Soft. Thousands of extra abrasive "Dots" reduce side friction, deliver maximum power to cutting edge. Rugged—Dependable—Safer.

• **CLIPPER DIAMOND**

Outstanding Performance in smooth efficiency is a part of every Clipper Diamond Blade—available in specifications for cutting every masonry material. If You Don't Know Diamonds, Know Your Manufacturer!



By the Makers of Clipper Concrete Saws

**Clipper**

KANSAS CITY, MO.

Better  
Mail the  
Coupon  
NOW!



Genuine Clipper Products Are Sold Only Direct. Immediate Shipment from Factory Branches in Principal Cities, Coast to Coast. Mail Coupon for Same-Day Service.

**CLIPPER MANUFACTURING CO.**  
2809 W. Warwick • Kansas City 8, Mo.

- ☐ I want a Clipper Masonry Saw on FREE TRIAL.
- ☐ Send FREE Literature on Clipper Masonry Saws.

- ☐ Send full information on Clipper Masonry Blades. 203X
- ☐ Have a Clipper representative call on me.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

# New Sherman Front End Loader with Balanced Combination of REACH... HEIGHT... CAPACITY



## Offers Many Exclusive Features

This new Sherman Front End Loader gives you *more for your money!* Loading height up to 10'10" . . . loads to front end of an 8' truck body from rear . . . bucket capacity up to 2500 pounds . . . breakaway capacity up to 4500 pounds . . . yes, these and other carefully engineered design features give you more than any comparable machine.

The husky main frame transmits loads to the tractor rear axle for greater traction and maximum performance with minimum strain on the tractor. Twin heavy duty tilt cylinders crowd bucket or attachments right in to do a man-sized job on excavating, loading, bulldozing, stripping, back-grading, bulk material handling, and many other jobs. Two models—up to 2500 lbs. payload.

The Sherman Front End Loader is economical, easily installed, safe and easy to operate . . . and sold by Ford Tractor dealers everywhere, your assurance of convenient, dependable service. Ask your dealer for an on-the-job demonstration—or write for Bulletin No. 811.

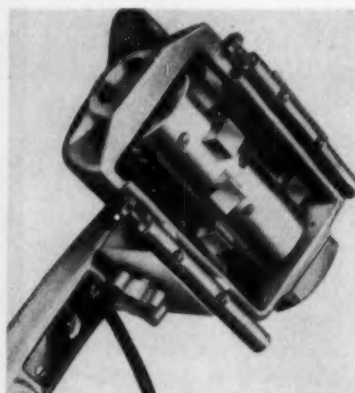


\*Manufactured Exclusively for  
Sherman Products, Inc. by  
Johnson Hydraulic Equipment Co.,  
Minneapolis, Minn.

© 1955, Sherman Products, Inc.



**ROTOR PAINT SCRAPER** removes paint without gouging, leaving a smooth surface. It will do it at the rate of 100 sq ft per hr.



**HEAD HAS 10 CUTTERS** that are removable for sharpening. The head is driven by a 1/3-hp motor on a flexible shaft.

## Paint Removal... Quick and Safe

SOON TO BE AVAILABLE this paint scraper, using a new principle, will leave a completely smooth surface regardless of the number of coats of paint to be removed and do it four times faster than by other methods, the maker says.

Called the Rotor Paint Scraper, the unit uses a 1/3-hp motor connected by a flexible shaft to a rotating cutter-head which runs at 5,000 rpm. The cutter-head uses 10 vanadium steel cutters, held in place with a set screw for easy removal for resharpener. Guides on the housing of the cutter make it simple for the operator to push it along and cut just deep enough to remove the paint leaving the



wood in its original condition. Its principle is similar to that of a wood jointer.

The unit is completely portable and can be used to remove paint not only from the vertical face of clapboard, but also the underside edge. It can also be used on flat surfaces.

Cost of the unit complete with tool box will be \$248, and it will be manufactured by Stow Manufacturing Co., Binghamton, N. Y.

## New National Plumbing Code

After 20 years' development, a uniform code for plumbing has been approved as the country's first true national plumbing standard, according to an announcement recently made by the American Society of Mechanical Engineers and the American Standards Association.

The code is not mandatory and is national in the sense that distinguishes it from the multiplicity of different codes which have only local recognition and acceptance and that it is supported by a national consensus. It is intended for those municipalities which need it as a basis for setting local standards that are uniform with those used elsewhere in the nation.

According to the sponsors, the code may be used by architects and contractors in the design and installation of plumbing equipment, by plumbing manufacturers in the design of their products, and by states and cities as a basis for regulations and ordinances.

The code published in book form may be obtained at \$3.50 a copy from: The American Society of Mechanical Engineers, 29 West 39th St., New York, 18, N. Y., and the American Standards Association, 70 East 45th St., New York 17, N. Y.

### WANT SOME MONEY?

CONSTRUCTION MEN are coming up with new methods and unique job-built tools and machine accessories all the time. Why not take a picture or two of the next interesting development on your job? Then send pix and a complete description to us for possible publication in *Construction Methods and Equipment*. The chances are that we can use your material — and you will get your check right away.—The Editor



## How a Sherman Power Digger Does More Work in Less Time with No Standby Equipment

Nearly every department in the city of Hopkins, Minnesota, finds a use for this versatile Sherman Power Digger.

The Water Department uses the machine when cutting off discontinued service lines at the main. They dig a hole in the street (usually blacktop) 3' wide by 6' long by 8' deep. The hole must be plumbwalled for minimum replacement of paving. This operation used to tie up a truck all day, an air compressor half a day, and two men with hand tools, a full day.

Using a Sherman Power Digger, they now do *three* such jobs in one day, with only one man on the digger, no truck, and no compressor, except for concrete pavement. The job goes faster because they can dig the hole, shut off the line, and backfill before the walls begin to cave. Local soil conditions formerly required cribbing many of these excavations.

If *your* work involves the construction or maintenance of underground facilities, you will profit with a Sherman Power Digger. It's compact, fast, and flexible, with low initial cost and amazing economy of operation. Write today for full details, without obligation. Ask for Bulletin No. 812.

\*Designed, Engineered and  
Manufactured Jointly by  
Sherman Products, Inc.,  
Royal Oak, Michigan.  
Wain-Ray Corporation,  
Hubbardston, Mass.

Patent No. 2-303-852  
Other Patents Pending

© 1955 Sherman Products, Inc.





# POWER ELECTRIC

## DELCO-REMY *ThunderVolt* A.C. GENERATORS FOR EXTRA-HEAVY ELECTRICAL LOADS

Delco-Remy's new ThunderVolt-12 A.C.-D.C. charging systems are the answer to the *extra-heavy* electrical demands of late-model contractors' trucks, police patrol cars, and other vehicles equipped with two-way radio, floodlights, or other special electrical units. High wattage output is ample for heaviest electrical loads . . . generators pick up discharged batteries quickly in emergencies. Delco-Remy A.C.-D.C. charging systems are unexcelled at curb-idle . . . furnish up to 180 amperes at higher engine speeds . . . are dependable under the most rugged operating conditions at all engine speeds.

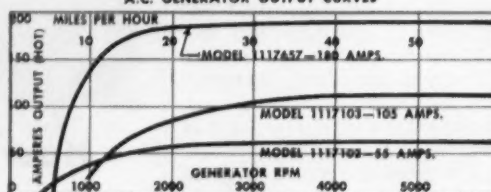
ThunderVolt 6 and 12 application packages, complete with installation instruction sheets for popular makes of cars and trucks, are available. Conversion is simple. See your nearest United Motors distributor for additional information.

A.C. GENERATOR PERFORMANCE DATA

Model	Volts	Cut-In RPM*	Curb Idle Amperes*	Maximum Amperes	Power Watts	Recommended For
1117102	12	600	30-40	55	660	All speeds.
1117103	12	975	6	105	1260	All speeds.
1117657	12	625	100	180	2160	All speeds.
1117062-3-4	6	750	30-40	90	540	All speeds.

\*APPROXIMATE (BASED ON 100 GENERATOR RPM/MPH)

A.C. GENERATOR OUTPUT CURVES



## DELCO-REMY *ThunderVolt* D.C. GENERATOR FOR MEDIUM-TO-HEAVY ELECTRICAL LOADS

Delco-Remy's ThunderVolt-12 extra-output D.C. generator is an economical answer to the electrical needs of late-model contractors' trucks, suburban police cars, rural mail cars . . . other vehicles with additional lights, two-way radios, or other special electrical equipment in medium- to heavy-duty service. Delco-Remy extra-output D.C. generators are low in cost, simple to install, economical to maintain. Performance data on the ThunderVolt D.C. generators are shown at the right.

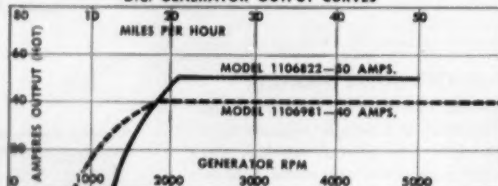
For further details and application data, see your nearest United Motors distributor.

D.C. GENERATOR PERFORMANCE DATA

Model	Volts	Cut-In RPM*	Curb Idle Amperes*	Maximum Amperes	Power Watts	Recommended For
1106822	12	1300	0	50	600	Medium to high speeds.
1106981	12	800	15	40	480	Low speeds & idling.
1106757	6	830	15	55	330	Medium to high speeds.
1106758	6	600	25	45	270	Medium to high speeds.
1106977	6	600	28	55	330	Low speeds & idling.

\*APPROXIMATE (BASED ON 100 GENERATOR RPM/MPH)

D.C. GENERATOR OUTPUT CURVES

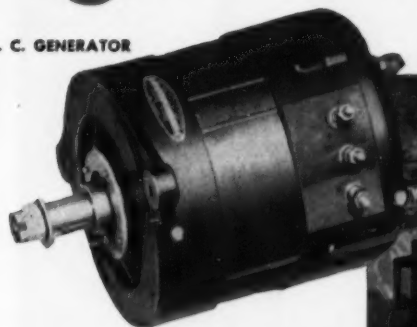


**Delco-Remy**  
*ThunderVolt*  
ELECTRICAL SYSTEMS

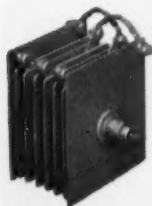
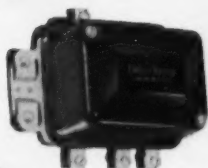
DELCO-REMY • DIVISION OF GENERAL MOTORS • ANDERSON, INDIANA

# right for the job

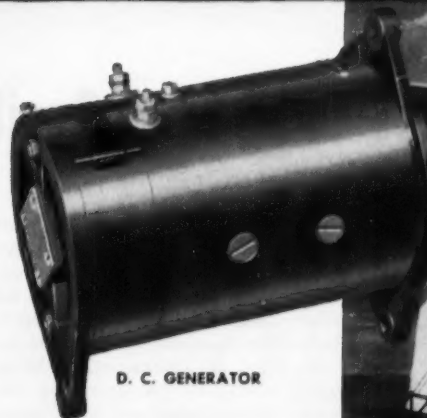
A. C. GENERATOR



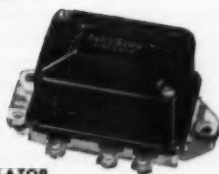
REGULATOR



RECTIFIER



D. C. GENERATOR



REGULATOR

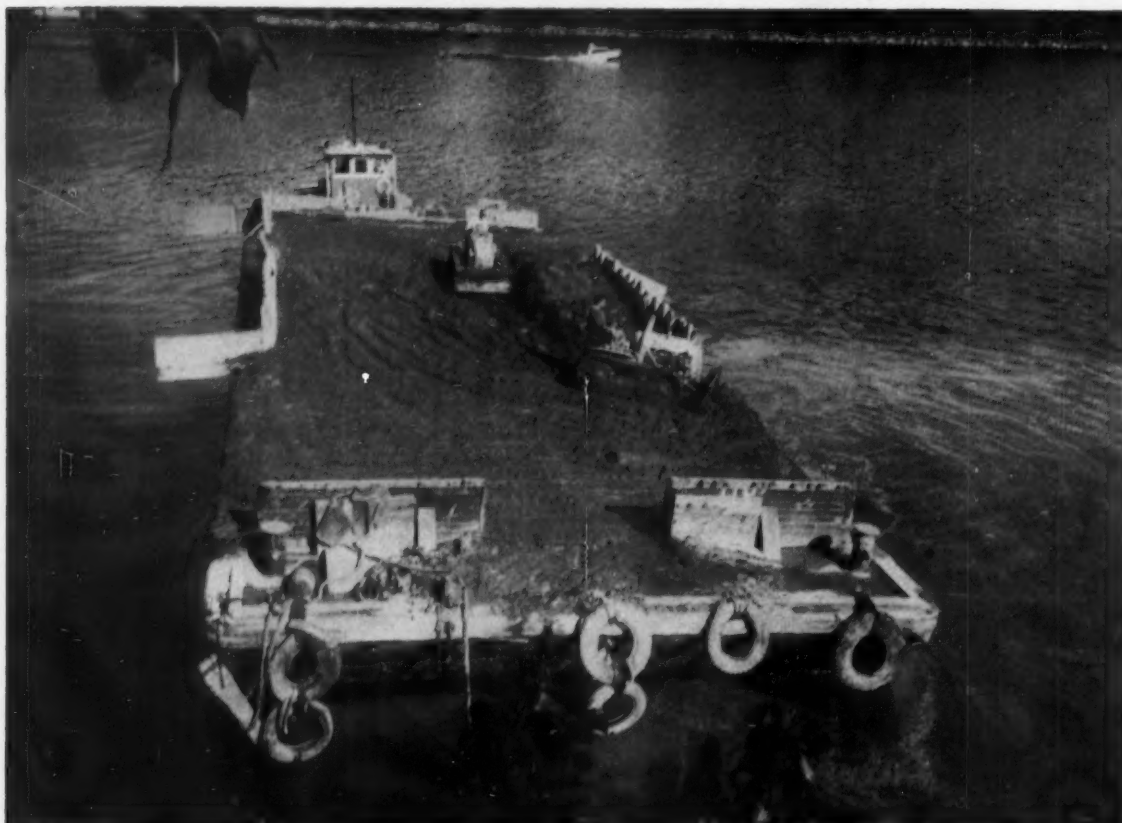


COPYRIGHT 1955—DELCO-REMY DIVISION, GENERAL MOTORS CORP.

A GENERAL MOTORS PRODUCT



A UNITED MOTORS LINE



On Connecticut River, in water too shallow for bottom-dump mud scows . . .

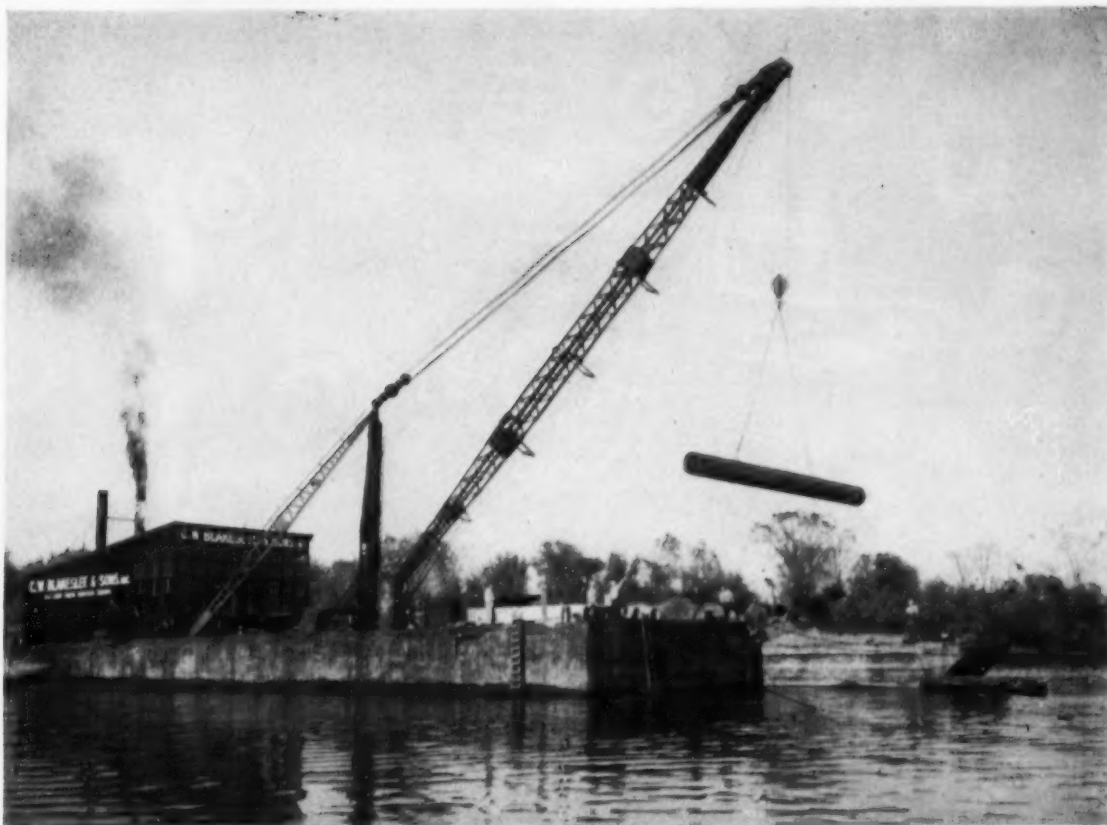
## Deck Scows and Dozers Dispose of Dredge Spoil



DOZER FOR UNLOADING SCOW is almost hidden behind piles of muck excavated from river. This material is a stiff clay, but little Oliver OC-3 has no difficulty in handling it.

HANDLING DREDGE MUCK with deck scows is not an ordinary procedure. But when a specified dumping area proved too shallow for other craft, spoil excavated for a river pipeline crossing was successfully piled on shallow-draft barge decks, towed by converted landing craft, and kicked off with small bulldozers. In a somewhat similar manner, the crossing later was backfilled with crushed stone.

The procedure was devised by C. W. Blakeslee & Sons for twin concrete 24-in. water lines beneath the Connecticut River near Hartford. In all, some 40,000 yd of river muck, clay and sand had to be excavated for two parallel 1,200-ft trenches 10 to 12 feet deep and 25 ft apart. Suction dredging was impractical because of higher cost and difficulty of keeping the trenches



**DERRICK FOR HANDLING PIPE** lowers two 16-ft sections, pre-coupled to 32 ft, to diver. Lock Joint 24-in. concrete pipe, whose

4-in. wall encases a steel shell, weighs 330 lb per ft and will be tested at 130 psi. Up to 6 sections are set in 8 hr.

open for a long time. Therefore, Blakeslee dredged them with a 25-ton derrick boat fitted with a 1½-yd clamshell bucket.

While water depth at the pipeline crossing varied from 15 to 28 ft, that at the spoil disposal area 1 mi downstream was but 6 ft, or less. This precluded use of standard bottom-dump mud scows (11-ft draft) and standard tugs (7- to 10-ft draft). Instead, Blakeslee dropped the excavated muck on to 30x90-ft deck scows fitted with 3-ft sideboards. A special 450-hp tug converted from a war surplus LCM hauled the scows to and from the dumping area. Twin propellers were recessed in the hull to reduce its draft to only 3 ft.

It took about 4 hr to pile a 200- to 300-ton load of muck on a scow. Another 2 hr were required to move, unload and return it. To unload, two small crawler bulldozers pushed the dredged material off the scow decks. Lifting straps welded to the dozers let the derrick dredge transfer the ma-



**DOCK FOR LOADING BACKFILL** accommodates one of fleet of White trucks with Heil 10-yd dump bodies that haul stone from quarry. Between 25,000 and 30,000 yd are required.





CRUSHED STONE FOR BACKFILLING TRENCH is pushed off scow deck by Oliver OC-3 bulldozers. Contractor found this method

much faster than using clamshell, but quantity of stone over-ran slightly, despite frequent soundings and careful spotting of scow.



STRAP FOR LIFTING BULLDOZER, welded to rig's frame, makes it easy for derrick to transfer the machine between backfill scows or to muck scows for handling both operations.

fill was immediately placed up to the top of pipe to prevent displacement should the trench cave. Later, after the crossing was all in, 8 ft of stone fill was dumped over the pipe.

The same two bulldozers that handled dredge spoil pushed stone off deck scows to backfill the trench. They placed some 60 to 75 yd per hr, unloading twice as fast as the usual clamshell method.

C. W. Blakeslee & Sons, Inc., New Haven, put in the twin water line for the Metropolitan District Commission (Hartford) at a contract price of \$90 per ft. James Gilbert was Blakeslee's project manager, Edward Murphy was superintendent, and John Davison was assistant. Robert Groche was senior inspector for MDC.

### Most of the Time It's Your Fault When You Have an Accident

HUMAN BEHAVIOR is responsible for 70 to 80% of all industrial accidents, according to a brand new report just published by New York University's Center of Safety Education.

The study, entitled "The Human Element and Industrial Accident Prevention," shows that such factors as personality characteristics, adjustment to a new job, rejection by co-workers, excessive fatigue, low morale, a tendency to be overly critical of the job, and lack of promotions are high among the causes of accidents.

The report contains summaries and interpretations from more than 200 studies screened from 500 research projects.

chines easily and quickly from empty barges to loaded barges.

A second derrick boat followed close behind the dredge to place the pipe. First it dumped a small quantity of crushed stone in the trench (which had been purposely slightly over-excavated) as a pipe bed. The stone was deposited in 6-ft long mounds, with a 2-ft gap between. Thus, if the pipe was too high after placement, a diver could easily rake excess stone from the top of the pile into the adjacent open area.

Pipe generally was handled in two 16-ft lengths, pre-coupled on deck, lowered to a diver for hook-up to the previously placed section. Crushed-stone back-



### M.S.A. BRIDGEMAN'S SAFETY BELTS

Designed and tested for dependability and comfort. Quick release type buckle. Special tongue arrangement prevents accidental opening. All hardware is drop-forged steel. Removable leather scabbard. Complete size range.



### M.S.A. BODY-TYPE SAFETY BELTS

Flexible, rugged, yet comfortable on the job. Ideal for close quarters. Available in all three types of webbing. All Dee Rings are equipped with metal liners of 20-gauge galvanized steel. All sizes.



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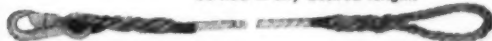
### M.S.A. HARNESS TYPE WEB SAFETY BELTS

This type of belt gives extra body support, and the adjustable shoulder straps distribute the weight more evenly—available in genuine leather or webbing.



### STEEL TAIL LINE

Strong belt anchor made of light flexible steel cable with drop-forged snaps at both ends. Quick to attach or release. Standard cable is 6 feet long, but may be had in any desired length.



### LANYARD

Available in 1/2", 3/8" or 3/4" rope with drop-forged snap at one end, loop at other, or any combination required. All splices have four licks, wrapped ends. Furnished in any length desired.



Call the M.S.A. man on your every safety problem...  
his job is to help you.



## backed by a single responsibility

Because there is no *one* safety belt that gives the best protection for *every* job, matching the belt to the need is all-important.

You get this *selection* advantage at M.S.A. Our complete line of safety belts lets you satisfy your specific requirements for safety belt protection . . . you get the belt that's built for the job.

You'll be interested, too, in the materials available. M.S.A. Leather Safety Belts are made from the highest grade harness leather, inspected and tested. *Diamond-Stripe Webbing Belts* are tough, yet comfortable, and are tested at 4,500 to 5,000 pounds. *Straco Web Safety Belts* have a tensile strength of 2,800 to 3,600 pounds. Both these materials are treated to resist moisture, mildew and the effects of paint. *Neo-Web Belts*, made of high tensile woven cotton webbing, and molded with a mixture of neoprene and special rubber, for chemical resistance, are tested at 2,800 to 3,200 pounds. All hardware on M.S.A. Safety Belts is tested to 5,000 pounds.

Get the facts on our complete line now. Our bulletin gives manufacturing details, describes and illustrates all M.S.A. Safety Belts. Write for your copy.

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Bradock, Thomas and Meade Streets, Pittsburgh 8, Pa.

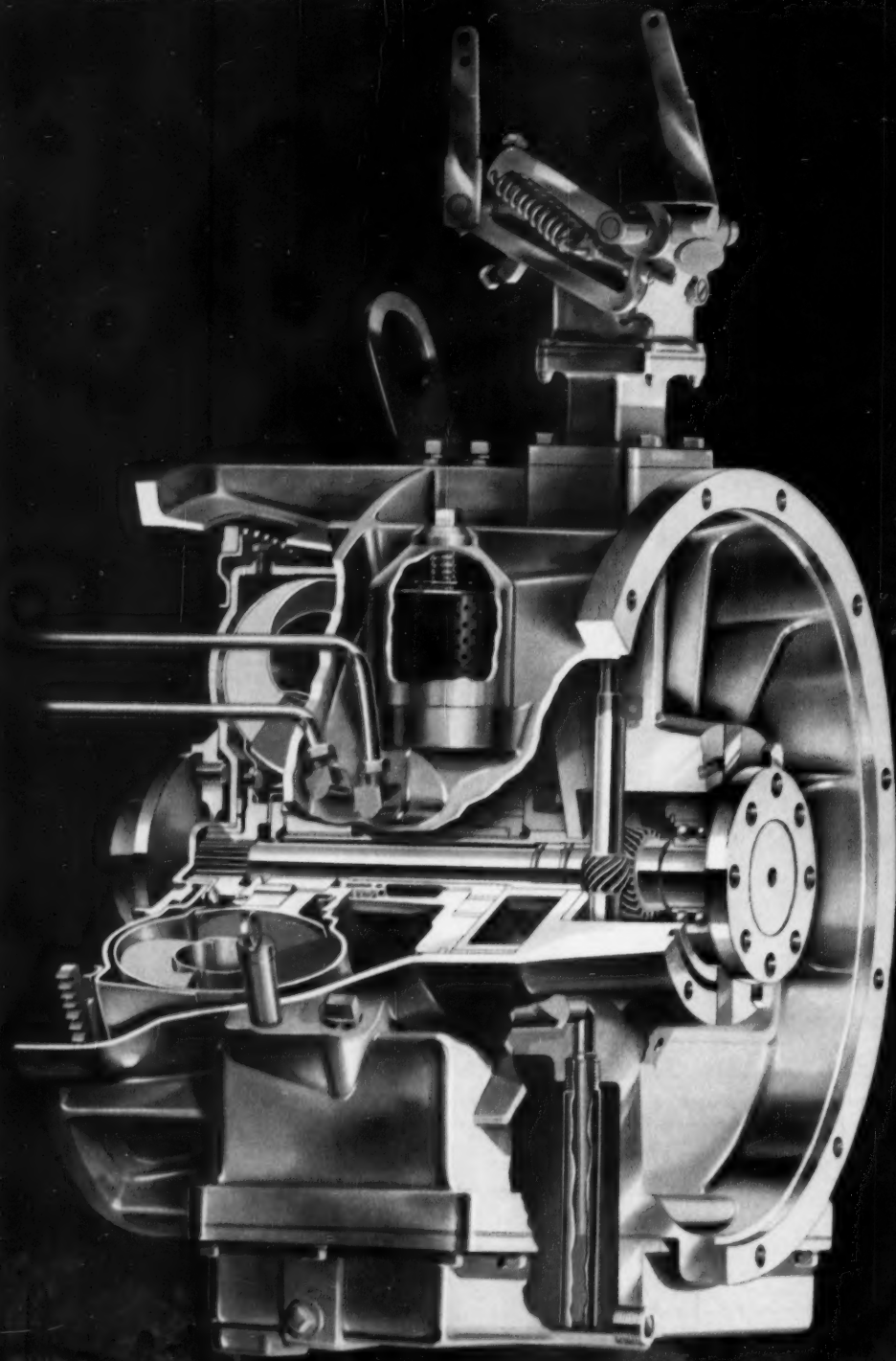
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# with the new **CHRYSLER** Industrial Torque Converter

## Now available for installation on Chrysler Industrial Engines

Chrysler—famous the world over for truly engineered performance—offers a New Industrial Torque Converter designed and built to fill the intermittent need for greater torque within the recommended power range . . . employed in any application.

The New Chrysler Industrial Torque Converter provides torque multiplication of 2.6 with almost 97% efficiency in coupling range. For the first time here's a torque converter with provision for a *built-into-the-housing* speed control device. This feature, optional equipment, auto-

matically adjusts torque converter speed to variations in road and load conditions, making it unnecessary to rely on less sensitive engine governor. Dual cooling, liquid and direct-air, dissipates torque converter heat faster enabling more efficient operation.

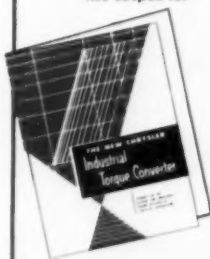
The engines powering your equipment now may lack the torque they occasionally need. Here's a way to solve that added requirement *without* installing an otherwise unnecessarily large engine. Check into these and the many other advantages of the New Chrysler Industrial Torque Converter. It's two-thirds the weight of cast iron competitive units which include provision for both transmission and power takeoff clutch. Its cost is amazingly low.

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**All Madesco Blocks Are Engineered  
to Serve Your Special Service Needs**

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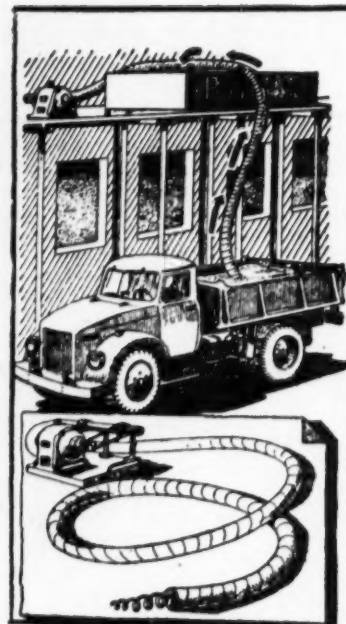
Heavy construction calls for heavy-duty blocks and MADESCO blocks combine the performance features developed through 30 years of specialized engineering for the construction field. Heavy steel shells and fittings, heavy iron or steel graphite-bronze, self lubricating sheaves are grooved to give you the maximum return for your rope investment. Sheaves equipped with bronze or anti-friction bearings for easy operation and long service.

# MADESCO BLOCKS

Our special service departments will help you with their recommendations. Write for our catalog or consult your equipment dealer who can supply you with MADESCO products.

**MADESCO TACKLE BLOCK CO., EASTON, PA.**  
A Subsidiary of Nazareth Cement Company

HAE-MB-107,55



## Soviets Announce Tube Conveyor

A NEW TYPE CONVEYOR for construction materials composed of small particles has been put to use in the Russian construction industry, according to published reports reaching the McGraw-Hill World News Bureau in Vienna.

The conveyor is said to have an airtight rubber or flexible steel tube for an outer cover, about 4 in. in dia and some 20 or 25 ft long. Inside the tube is a sturdy steel wire, coiled to spiral through the tube and clear the inside wall enough to revolve freely.

One end of the wire is attached to the shaft of an electric motor which rotates it when in operation. The other end extends 3 or 4 in. beyond the tube and becomes the working end—being pushed into the material being conveyed when in operation.

As the spiral wire end rotates in a pile of material, according to the report, material is brought along by the whirling coils transporting it inside the tube to an opening where it is ejected for delivery. It is reported that two workers have unloaded a 22-ton car of cement in 2½ hr with this conveyor and that a team can operate more than one conveyor at a time.

Materials handled have included sand, cement, lime and gypsum. The complete unit weighs approximately 200 lb.

**Portable Power lubrication**  
where it's needed — when it's needed!

# ALEMITE PORTABLE SERVICE STATIONS

**64% faster!**

**cut maintenance time to the bone!**

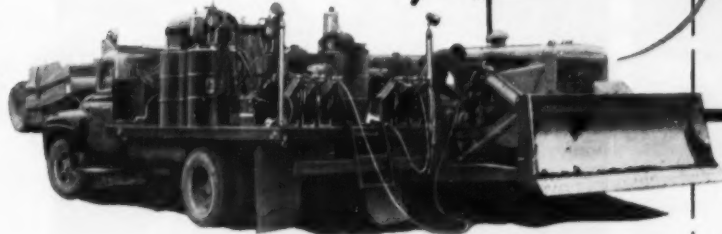
Alemite Portable Service Stations take all the advantages of power lubrication right to machines on the job — no time spent in travel to and from a grease shop — cut maintenance and downtime to the bone. Even more important, they assure the protection only *power lubrication* can give, greatly reduce the chances of costly bearing failure.

And you get all this tailored to your exact lubrication needs — all from standard Alemite equipment. Nothing is specially built. An Alemite Portable Service Station soon pays its own way by proven savings in time, money, equipment!

## Alemite Portable Service Stations offer these four services

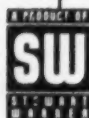
- Fast easy lubrication of track rolls and fittings.
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...and your Alemite Portable Service Station is ready to roll...  
**ready to save you money!**



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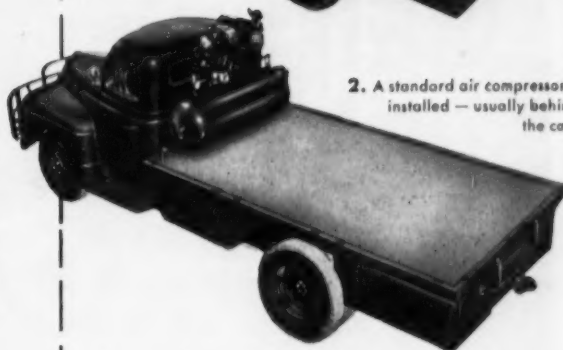
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1. You choose the truck that fits your needs for size, power, terrain.



2. A standard air compressor is installed — usually behind the cab.



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FORMS ARE ERECTED on 17th floor of 22-story apartment building, as brick work follows closely behind. Patent hanging scaffolds completely encircle exterior to support crew of bricklayers. Note packages of brick stacked near edge of building over scaffold.

## Palletizing Speeds Masonry Handling

• Palletized masonry handling is making big strides this year. (CM&E p 60, Feb. '55). It saves time, cuts labor, and reduces handling. Mason contractors on New York's Corlear's Hook housing project palletize block, slate sills, mortar tubs, tile, and even brick. Packages of 200 bricks are shipped directly from manufacturer to user.



MORTAR TUB on wood pallet is easily handled by lift truck. Tub has capacity of six wheelbarrows and supplies large crew.



NEAT PACKAGE of 200 brick shipped directly from the manufacturer in pallets is pulled off flat-bed truck with Yale lift truck, carried up in elevator, and stacked within easy reach of masons.



PALLET OF PARTITION BLOCK is picked up by lift truck, lowered to floor on hydraulic gate, pulled off on hinged bridge plate, and hauled into building. Lift trucks have 1000-lb capacity.



# LOAD

Model 543 pneumatic tired Bucket Loader.  
Easily converted for coal or snow.



Model 82-A crawler mounted Bucket Loader. Hydraulically controlled trimmer-conveyor optional.

**LOAD** the cheapest way.

**LOAD** from stock pile, bank, or windrow.

**LOAD** and screen in one operation.

**LOAD** and strip topsoil in one operation.

**LOAD** with the most advanced engineering developments in the loading field.

Let us show you how a Barber-Greene Loader can reduce your costs.

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INFORMATION

descriptive literature . . . sound movies  
cost studies . . . nearby job inspection . . . plant layouts





# Specs for Your Files...

## TRACTORS - (Track-type) - 1955

Specifications furnished by manufacturer on models only in production.

TRACTOR Make and Model	GENERAL DATA					HP RATING		MAX. DRAWBAR PULL (LBS) NORMAL GOVERNED ENGINE RPM								MAX. TRAVEL SPEEDS (MPH)									
	Length (in.)	Height (in.)	Width (in.)	Cage (in.)	Weight (Lbs.)	Drawbar	Ball	1st	2nd	3rd	4th	5th	6th	7th	8th	1st	2nd	3rd	4th	5th	6th	7th	8th	Reverse low	Reverse high
1 AGRICAT CS	58	41	38	6	1,160	5		1,000	960							1.75	3.00							2.25	
2 LS	58	41	38	6	1,270	5 1/2		1,150	1,050							1.75	3.00							2.25	
3 ALLIS-CHALMERS HD-20	191	94	109	84	41,000			Torque Converter								Torque Converter								0-3.0 0-7.0	0-5.5
4 HD-15C	172	80	96	74	28,300			Torque Converter								Torque Converter								0-2.5 0-4.3	0-3.2
5 HD-15	172	83	96	74	27,850	109	124	29,400	19,080	13,100	9,670	8,050	5,840			1.4	2.1	3.0	3.9	4.5	5.8			1.5	4.5
6 HD-9	150	70	95	74	18,800	72	84	19,030	12,240	8,680	6,580	5,410	3,920			1.4	2.1	2.9	3.8	4.4	5.7			1.6	4.4
7 HD-5	125	61	79	60	11,250	40	50	10,060	5,970	4,270	3,310	2,260	X			1.5	2.4	3.3	4.0	5.5	X			2.0	X
8 TERRATRAC 200	107	56	66	56	4,550	26.3	31.4	4,550	2,870	1,750						1.74	2.75	4.52						2.01	
9 300	96	56	58	48	4,550	26.3	31.4	4,550	2,870	1,750						1.74	2.75	4.52						2.01	
10 400	96	67	59	48	4,700	30	34	4,700	2,980	1,810						1.74	2.75	4.52						2.01	
11 480	96	67	59	48	4,835	30	32	4,835	3,050	1,855						1.74	2.75	4.52						2.01	
12 500	102	67	60	48	4,920	-	34	4,920	3,115	1,890						1.74	2.75	4.52						2.01	
13 600	102	67	60	48	5,050	-	32	5,050	3,195	1,940						1.74	2.75	4.52						2.01	
14 6-3	96	Opt.	60	48	6,150	30	34	5,990	3,770	2,304						1.74	2.75	4.52						2.01	
15 CATERPILLAR D2	108	61	65	40	7,175	38	43	7,250	5,170	4,110	3,270	2,145				1.8	2.7	3.2	3.9	5.5				2.2	
16 D4	120	68	78	60	10,670	48	54	9,550	6,830	5,270	4,000	2,570				1.9	2.7	3.4	4.2	6.1				2.2	
17 D6	147	75	95	74	17,530	75	85	17,900	10,980	7,450	5,150	3,620				1.7	2.6	3.6	5.0	6.6			2.0	6.2	
18 D7	167	81	97	74	25,970	102	-	25,900	17,720	11,960	7,550	5,280				1.5	2.2	3.2	4.6	5.9			1.8	5.4	
19 D8	195	89	108	78	39,060	155	191	39,150	30,900	21,000	14,120	9,490				1.5	1.9	2.8	3.8	5.2			2.0	3.8	
20 Torque Con. D8	205	89	103	78	39,925	191		Torque Converter								Torque Converter								0-3.6 0-7.4	0-7.4
21 JOHN DEERE 4-Roller-40-C	102	54	67	36-44	4,125	20.14	24.99	4,515	3,433	2,463	1,109					895	2.25	3	5.25	-	-			1.75	
22 5-Roller-40-C	102	54	67	36-44	4,560	20.14	24.99	4,515	3,433	2,463	1,109					895	2.25	3	5.25					1.75	
23 EMCO 106	151	78	98	74	27,000	Torque Conv. Torque Motors	120	Low Range - High Range 45,000 - 15,800 10,500 Lbs. Max. Zero Track Slippage								Low Range - High Range 0-2 1/4 - 0-5 1/2 Zero to 1 1/2 Forward or Reverse								2 1/4	5 1/2
24 630	71	28	55	45	6,060		25																		
25 INTERNATIONAL TD-24	182	98	102	80	40,575	161.07		37,160	24,492	23,416	18,178	13,124	9,689	7,318	5,488	1.5	2.0	2.5	3.2	4.1	5.3	6.3	8.0	1.6	7.8
26 Torque Con. TD-24	182	89	102	80	41,250	-		-	-	-	-	-	-			2.7	3.5	5.5	6.9	-	-			2.7	6.6
27 TD-18A	158	83	82	74	26,455	89.29	101.98	20,234	15,279	11,754	8,890	6,502	4,870			1.7	2.2	2.7	3.5	4.6	5.7			1.8	3.6
28 TD-14A	134	73	74	74	18,170	65.90	75.30	14,652	11,772	8,667	6,691	5,065	3,612			1.6	2.0	2.6	3.4	4.4	5.7			1.6	3.4
29 TD-9	114	66	59	60	10,930	41.31	48.91	9,909	6,872	4,752	3,626	2,419	X			1.5	2.2	3.0	3.9	5.3	-			1.7	3.5
30 TD-6	104	62	53	50	7,940	33.78	40.29	8,131	5,514	3,742	2,992	1,903	X			1.5	2.2	3.1	3.8	5.4	-			1.7	3.5
31 OLIVER OC-18	167	82	111	78	32,000	133.0	149.0	31,030	18,510	11,770	6,880					1.50	2.61	3.76	5.45					1.83	3.53
32 DO	128	67	89	48	13,351	60.47	74.43	14,785	9,682	7,277	3,978					1.45	2.28	3.04	4.85					1.72	3.62
33 DO	128	67	89	48	12,532	60.67	71.40	14,582	9,362	7,180	3,964					1.45	2.28	3.04	4.85					1.72	3.62
34 OC-12D	109	57	58	44	10,140	45.1	52.7	10,860	7,405	4,930	2,890					1.53	2.24	3.20	5.04					1.65	3.44
35 OC-12C	109	57	58	44	9,860	44.3	52.0	10,570	7,285	4,835	2,865					1.53	2.24	3.20	5.04					1.65	3.44
36 AB	101	54	58	42	7,662	38.5	38.0	8,580	4,520	2,880	X					1.78	2.62	3.74	X					1.36	X
37 AG-6	103	54	58	42	7,886	38.6	38.8	6,020	4,160	2,640	X					1.78	2.62	3.74	X					1.36	X
38 OC-6D	121	56	56	42	5,425	34.74	37.4	6,779	5,294	3,708	2,729	2,104	922			1.86	2.44	3.23	4.19	5.15	8.05			1.92	3.31
39 OC-6G	121	56	56	42	5,280	32.99	37.9	6,215	4,681	3,426	2,532	1,990	897			1.88	2.44	3.23	4.19	5.15	8.05			1.92	3.31
40 OC-3	106	50	52	42	3,182	21.83	26.36	3,940	2,512	1,472	X	X	X			2.01	3.19	5.25	X	X	X			2.33	X

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# A New CM&E Feature

CONSTRUCTION

# METHODS

AND EQUIPMENT

TRACKS				ENGINE							BELT PULLEY			LIQUID CAPACITIES					MISCELLANEOUS			
No. of shoes	Length (in.)	Width (in.)	Area of ground contact	Make and model	Cycle	No. of cylinders	Displacement	Rated hp	Rated rpm	Rated torque	Cooling system (Gal.)	Fuel tank (Gal.)	Crankcase (Qtz.)	Transmission (Qtz.)	Final drive (Qtz.)	Ground clearance	Type steering	Turning radius (in.)				
52	30	6	360	B-5 23	1	3x3 1/4		X	3,200	Rope												
60	38	6	456	B-5 23	1	3x3 1/4		X	3,200	Rope												
37	106	24	5,118	GM	2	5x5 6		X	1,700	Elec.	20	15	0-780	15	120	33	39	30	16 1/8	Clutch	122	3
38	96	20	3,853	GM	2	4 1/4x5 6		X	1,600	Elec.	18	15	0-693	12 1/2	91 1/2	28	34	22	14 3/8	Clutch	106	4
38	96	20	3,853	GM	2	4 1/4x5 6		X	1,600	Elec.	18	15	683	11 3/4	91 1/2	28	34	22	14 3/8	Clutch	106	5
38	85	16	2,744	GM	2	4 1/4x5 2		X	1,600	Elec.	13 3/8	10	929	7 1/4	55	16	27	13	13 5/16	Clutch	103	6
33	64	13	1,670	GM	2	4 1/4x5 2		X	1,800	Elec.	12	8 3/4	963	3 3/4	37	8	20	12	11 1/4	Clutch	82	7
30	54	10	1,080	Cont	4		X	1,850	Elec.	8 1/2	6 1/2	1,130	3 1/2	9	4	8	5	13	Controlled Differential	94	8	
30	54	10	1,080	Cont	4		X	1,850	Elec.	8 1/2	6 1/2	1,130	3 1/2	9	4	8	5	13		94	9	
31	57	11	1,254	Cont	4		X	1,830	Elec.	8 1/2	6 1/2	1,130	3 1/2	15	4	8	5	13		94	10	
31	57	11	1,254	Cont	4		X	1,800	Elec.	8 1/2	6 1/2	1,130	3 1/2	15	5	8	5	13		94	11	
32	60	12	1,440	Cont	4		X	1,850	Elec.	8 1/2	6 1/2	1,130	3 1/2	15	4	8	5	13		94	12	
32	60	12	1,440	Cont	4		X	1,800	Elec.	8 1/2	6 1/2	1,130	3 1/2	15	5	8	5	13	94	13		
31	57	12	1,368	Cont	4		X	1,850	Elec.	8 1/2	6 1/2	1,130	3 1/2	11	4	8	5	14	94	14		
32	61	12	1,460	Cal D311	4	4x5		X	1,650	Gas	12	7 1/2	1,001	7 1/2	26	14	8	4 1/2	9	Clutch	68 76 75 88 96 119	15
31	61	13	1,589	Cal D315	4	4 1/2x5 1/2		X	1,600	Gas	12	8 1/2	960	11	30	15	18	7	11 7/16	Clutch	75 88 96 119	16
39	85	16	2,744	Cal D318	4	4 1/2x5 1/2		X	1,600	Gas	13 1/8	13	896	14 1/2	48	22	42	13	12 1/2	Clutch	116	17
37	94	20	3,775	Cal D8800	4	5 3/4x8 6		X	1,000	Gas	17 5/8	15	832	17	85	22	43	23	15 1/2	Clutch	116	18
42	111	22	4,917	Cal D13800	4	5 3/4x8 6		X	1,200	Gas	14 7/16	15	1,015	25	118	34	35	20	13	Clutch	125	19
42	111	22	4,917	Cal D13000	4	5 3/4x8 6		X	1,200	Gas	14 7/16	15	1,015	25	118	34	31	20	13	Clutch	135	20
32	56	10-12-14	1,568	John Deere-40	4	4x4		X	1,850	Elec.	9	6	1,850	3 1/2	10 1/2	5	6 1/2	-	14	Brake & Clutch	7 1/2	21
35	66	10-12-14	1,858	John Deere-40	4	4x4		X	1,850	Elec.	9	6	1,850	3 1/2	10 1/2	5	6 1/2	-	14		8	22
80	95	24	4,560	Cummins 400	4	5 1/2x6		X	1,800	Elec.	-	-	-	9 1/2	60	20	128	136	11	Undrive Trans. Twin Motors	90	23
56	43 1/2	9	783	Einco					750					-	-	-	70	-	6		45	24
39	104	22	4,598	Int	4	5 3/4x7 6		X	1,400	Elec.	-	-	-	37	85	30	50 Gal	10	13 7/8	Planet. Per Planet. Per	118	25
39	104	22	4,598	Int	4	5 3/4x7 6		X	1,500	Elec.	-	-	-	38	135	30	50 Gal	21	13 7/8	Planet. Per Planet. Per	116	26
24	84	20	3,370	Int	4	4 3/4x5 1/2		X	1,350	Elec.	11 3/4	11	844	26	66	26	7 1/2	5 1/2	14	Clutch	97	27
24	78	16	2,510	Int	4	4 3/4x5 1/2		X	1,400	Elec.	11 3/4	11	875	19	45	16	6	3	11 3/4	Clutch	90	28
24	63	13	1,640	Int	4	4x5 5		X	1,400	Elec.	11	8 1/2	878	13	31	11	5 1/2	1 1/2	10 1/8	Clutch	72	29
20	58	12	1,398	Int	4	3 7/8x5 1/4		X	1,450	Elec.	11	8 1/2	811	10 1/2	20	9	4	1	8 3/4	Clutch	65	30
35	100	22	4,411	Hercules	4	5 5/8x5 6		X	1,500	Elec.	-	-	-	15 1/2	66	34	136		16 7/16		204	31
31	76	16	2,440	Hercules	4	4 3/8x5 1/4		X	1,300	Elec.	13	11	968	10 1/2	30	16	52		12 1/4		168	32
31	76	16	2,440	Hercules	4	4 3/8x5 1/4		- X	1,300	Elec.	13	11	968	10 1/4	30	12	52		12 1/4		168	33
32	67	14	2,082	Hercules	4	4 3/4x5 1/2		X	1,750	Elec.	12	8 1/2	1,034	5	35	12	38		11 3/4		181	34
32	67	14	2,082	Hercules	4	4x4 1/2		- X	1,750	Elec.	12	8 1/2	1,034	6	35	7	38		11 3/4		181	35
29	62	12	1,488	Hercules	4	4x4 1/2		X	1,530	Elec. Hand or	10 1/2	8 1/2	1,130	5 1/2	18	13	32		13 1/2		95	36
29	62	12	1,488	Cont	4	3 5/16x4 3/8		- X	1,530	Elec.	10 1/2	8 1/2	1,130	5	18	8	32		13 1/2		95	37
33	54	8	866	Oliver	4	3 5/16x3 3/4		X	1,600	Elec.	-	-	-	4 1/4	16 1/2	5	29		20		81	38
33	54	8	866	Oliver	4	3 5/16x3 3/4		- X	1,600	Elec. Hand or	-	-	-	4 1/4	16 1/2	5	29		20		81	39
30	50	6	600	Hercules	4	3 1/4x4		- X	1,700	Elec.	8 1/2	6 1/2	551	2 3/4	12	5 1/2	9 1/2		20		91	40

Reprints of this chart will be available. Address your request to: Editor, Construction Methods & Equipment, 336 W. 42nd St., New York 36, N. Y.

# "THIS LUBRICANT CUT BEARING REPLACEMENTS OVER 40%"



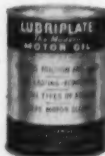
says—HANOVER BUILDING SUPPLY CO. of Hanover, Pa.

"Before using LUBRIPLATE, we replaced the wheel bearings in over 50% of our trucks each year. Since using it, bearing replacements have dropped to less than 10%. We have also been able to increase periods between chassis lubrications from 500 to 2000 miles. We are very happy over our change to LUBRIPLATE, and heartily recommend it to fleet operators interested in saving money."

HANOVER BUILDING SUPPLY CO.  
C. O. Albright, Pres.

**REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE GREASE AND FLUID TYPE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.**

LUBRIPLATE is available in grease and fluid denatities for every purpose... LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.



For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK"... a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.



## Equipment Specs . . .

• This month CM&E inaugurates a new and valuable feature: charts listing comparative specifications of construction equipment. The first chart, which appears on the preceding two pages, gives crawler-tractor specs. Others to follow will include rollers, graders, compressors, and other important construction machines.

Watch for them!

## Boom Too Long?

CRANE BOOM LENGTHS are getting longer and longer. In the February issue we ran a picture of a 197-ft boom, and this month we covered a job on which a crane sported a 230-ft boom (p. 56). One reader, however, questions the 197-ft length. Here is his letter:

Sirs:

An article appeared on p 38 of the February 1955 issue of CONSTRUCTION METHODS AND EQUIPMENT. I am a construction superintendent working for the Siegfried Construction Co., Inc. of Buffalo, NY. I would like you to clarify your statement on the crane with 197-ft boom and possible 212-ft boom. From your printed photograph, I determine the boom length on this 100-ton crane to be 145 ft and no more.

I am a constant reader of CONSTRUCTION METHODS AND EQUIPMENT. In your publication I expect facts. This crane item is questionable. Please clarify this for me.

I have seen in operation a Brewster crane measuring 16 ft 6 in. across, with a maximum boom length, with jib, of 165 ft. With a crane of this kind it is an impossibility for the crane operator to raise his own boom under his own power after a 165-ft boom is assembled. He needs an assisting crane to raise the boom.

Expecting your prompt reply, I remain,

J. M. Fuhrmann  
1095 Center Rd., Buffalo 24, N. Y.

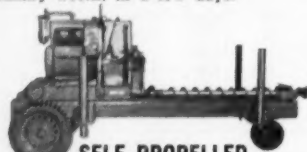
NOTE: CM&E checked the owner of the crane, and he assures us the boom shown in the picture is 197 ft long, including a 50-ft jib. While some cranes require an assisting crane to raise a boom of that length, the Koehring Model 1005 does not.

## LEADING CONTRACTORS USE McCarthy Drills



### PUBLIC UTILITY AUGER DRILL

Bores holes from 4 1/2" to 24" in diameter under sidewalks, roads, building foundations, railroad tracks, landscaped grounds, etc. Fithian Contracting Co., Youngstown, O., using McCarthy Public Utility Auger Drills, completes pipe line jobs, formerly taking weeks, in a few days.



### SELF-PROPELLED HORIZONTAL AUGER DRILL

Will bore 6" and 8" diameter holes 120 feet horizontally at rate of six feet per minute maximum. Four individual, self-locking jacks maintain correct drilling level. In one day a New Castle, Pa., operator bored holes of various depths totaling 840 ft. through shale and sandstone, using this McCarthy Auger Drill.

**Heavy-  
Rugged  
Powerful**



### VERTICAL AUGER DRILL

Operating men who have made actual on-the-job tests find the McCarthy Vertical Auger Drill a standout for mobility, stamming, ruggedness and versatility. On a 2-million dollar, 5-mile stretch of superhighway between Hubbard, Ohio, and Sharon, Pa., The Apex Powder Co., Canton, Ohio, cut blasting costs approximately 20% as compared to air, well or churn drilling. Cutting through two large areas of concentrated rock, 150 holes 15 feet deep were bored for each blasting pattern. 3,000 cubic yards of sand rock were moved at each blast. Due to the ruggedness and mobility of McCarthy Drills, there was no time lost. For further information, write Salem Tool Co. and our distributor will contact you.



DRILLING EQUIPMENT  
SINCE 1901

## THE SALEM TOOL CO.

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SALEM, OHIO • U. S. A.

THERE'S A **Whiteman** MODEL FOR

# EVERY SIZE JOB!

OF CONCRETE FLOATING  
AND FINISHING...

**MODEL C-4** Large, heavy duty. 46" dia. "Snap-on" trowels for floating or finishing.

**MODEL B-1** Suitable for large areas. 44" dia. Snap-on float trowels. Largest seller.

**MODEL J-1** Medium machine for general use. 34" dia. Float trowels snap on in seconds.

**MODEL M** Small, compact for light construction. 29" dia. Perfect companion for larger machines.

BIG JOBS, SMALL JOBS, frequent or occasional jobs... no matter how much or how little concrete finishing you do, there's a Whiteman Floating-Finishing Machine to do it faster, better, cheaper. All offer *exclusive* Whiteman features... such as trowel adjustment with the machine in motion. And all offer *dependable* Whiteman quality... *proved* in performance during 17 years of pioneering and development. Ask your Whiteman distributor which machine will best serve your needs.



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THE LEADER IN CONCRETE EQUIPMENT

Whiteman Manufacturing Co.  
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☐ Power Buggies ☐ Screeding Machines

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Firm \_\_\_\_\_

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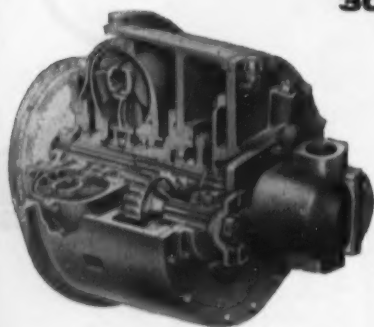
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



# Faster... more power... better traction



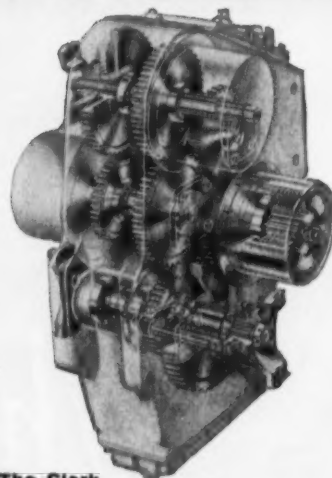
## 300% torque multiplication when you need it



The Clark Torque Converter

1. You get 3-to-1 torque multiplication automatically when the going is toughest—smooth power, maximum traction.
2. You can't stall the engine—instead you get full power on the bucket cutting edge.
3. No clutch—eliminates the chief cause of operator fatigue and maintenance problems.

From engine to tires, the MICHIGAN power train has been engineered for superior tractor shovel service. For complete details and cutaway drawings, write for Tractor Shovel Broadside.



The Clark  
Power-Shift Transmission

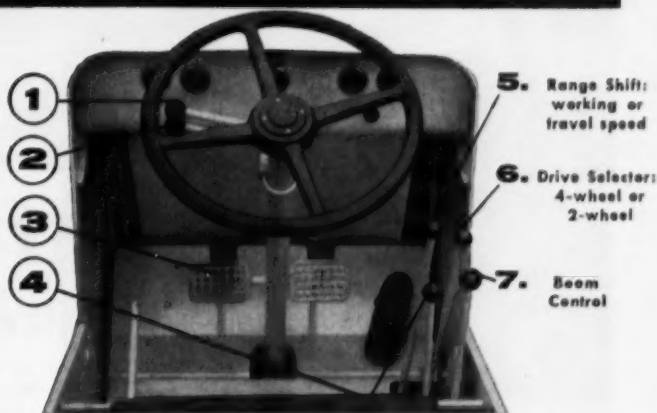
# — and **LOOK, NO CLUTCH !**



Until you see a MICHIGAN® in action, you won't believe that a tractor shovel can deliver so much power and traction *with such ease of operation!* There's no clutch pedal on a MICHIGAN—it's as simple to drive as a brand-new car. And having eliminated the engine clutch, the MICHIGAN eliminates the most notorious cause of driver fatigue and excessive maintenance cost.

The MICHIGAN's remarkable ease of operation saves time in every cycle, adds up to more yardage per hour. The operator stays at peak efficiency because he doesn't have to fight a heavy-duty clutch all day.

To really recognize the superiority of this machine, all you have to do is see it in action. It's easily arranged, without obligation—write us for a demonstration. And MICHIGAN Tractor Shovels are available under a low cost Leasing Plan—glad to send you full details.



## **Hydraulic power does the shifting**

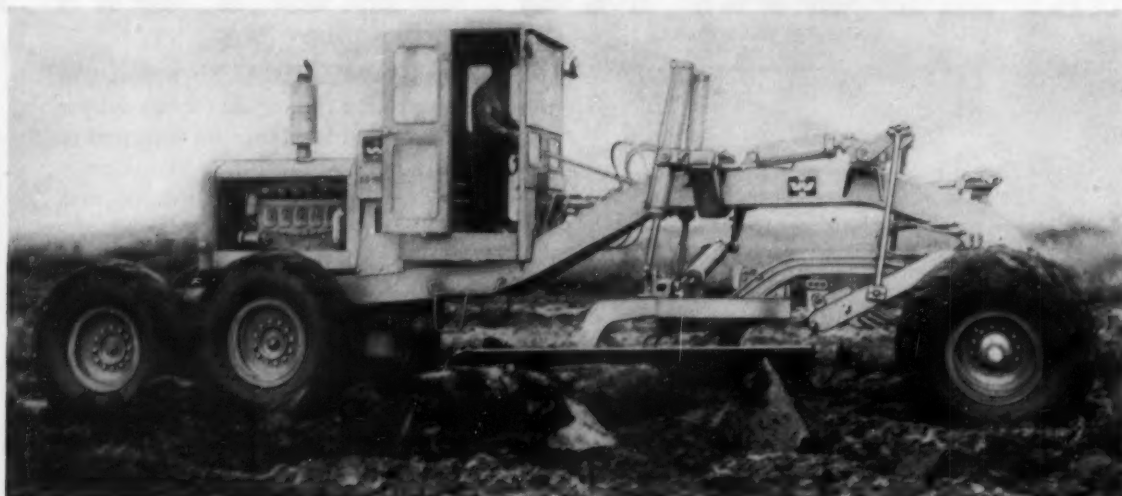
1. Gears in constant mesh—no gear clash, noise or wear.
2. 4 speeds forward and reverse, up to 27 mph in both directions.
3. Oil re-circulated by pump lubricates entire transmission.
4. Power-shift levers on steering column actuate transmission control valves.
5. To put full power on the bucket, just step on the brake—you automatically put the transmission in neutral.

## **It's a pleasure to work here!**

1. **Forward and Reverse:** easy hand-lever on steering column; make either shift while moving in either direction.
2. **High and Low Speeds:** another easy hand lever.
3. **That's no clutch!** It's a double-pedal brake, use it with either foot.
4. **Break-out bucket action:** work the bucket in the pile—you've got 2 double acting bucket cylinders for tremendous break-out power, independent low-level tip back action.

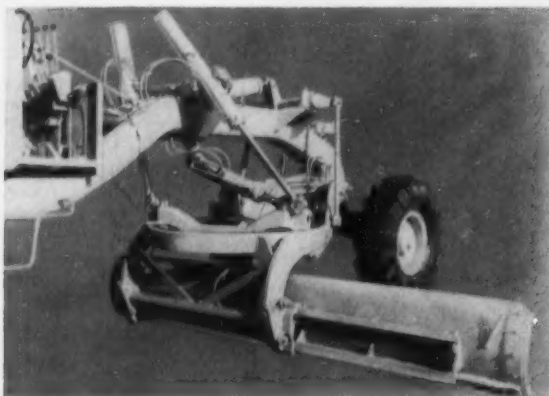
**CLARK  
EQUIPMENT**

**CLARK EQUIPMENT COMPANY**  
Construction Machinery Division  
380 Second St., Benton Harbor 28, Michigan  
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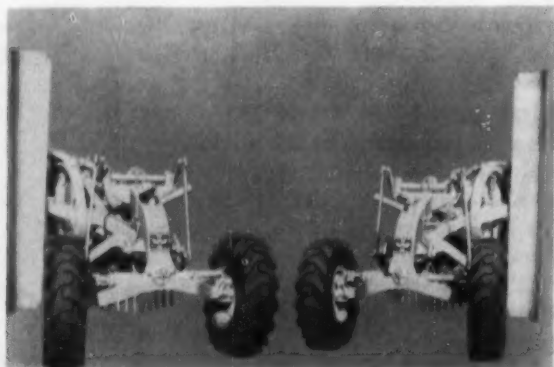


Huber-Warco's first production model could be industry's

## Forerunner of More Powerful Motor Graders



POWER SLIDING MOLDBOARD is standard equipment on the 5D-190. The blade is 13 ft long and height is 28 in.



COMPLETELY HYDRAULIC CAB-CONTROLLED blade movement is shown here. The blade can be moved from one side to the other in 1 min. Four-wheel brakes are standard equipment.

TOPPING ALL MOTOR GRADERS presently in production, at least from a hp rating and weight factor, is the first new product manufactured by the recently merged Huber-Warco Co., Marion, Ohio. Designated as Model 5D-190, the big motor grader boasts an output of 195 hp from its General Motors 6-71 diesel engine operating at 1,800 rpm—55 hp more than its nearest rival. Weight, with scarifier is 31,500 lb—2,095 lb more than the former claimant to the heaviest motor grader title.

Ground speeds of the new model are comparable to others with speeds ranging from .85 to 20 mph.

The new motor grader has a number of interesting features.

It enjoys the distinction of having a 32-in. front axle clearance which will permit it to straddle higher windrows and give ample clearance for rough cuts.

Standard equipment includes a man-sized 13-ft power sliding moldboard in 28-in. depth.

The blade is hydraulically cab-controlled and can be moved by the operator from a 90-deg position on one side to a 90-deg position on the other in less than 1 min. A rotating saddle design eliminates linkages to adjust manually in bank-sloping operation. The blade also has a full 360-deg rotation, without removing scarifier teeth.

The unit is steered mechanically by a hydraulic booster with leaning front wheels controlled from the cab through a hydraulic cylinder on the axle.

Wheels and 16.00x24 tires are completely interchangeable.

Power for the motor grader is supplied through a torque converter and full power shift transmission. The Allison torque converter multiplies torque hydraulically and helps protect the grader from shock loads, adding to the life of the engine and equipment.

The quick-shift transmission, also Allison design, eliminates the need for a clutch. It will permit quick

(Continued on page 117)





## MUSCLES OF STEEL

### *put the mules out of business*

Oldtimers in coal mining can remember when mule-power was the only means of transportation in the mines.

Today's efficient coal mining demands big-capacity mechanized equipment. In modern underground mines, wire rope serves as *muscles of steel*—pulling cars from the loader to discharge point. In strip mining, also, wire rope provides the *muscle* for huge stripping shovels.

No matter what the job may be—wherever there's need for *muscles of steel*—it's a safe bet that Wickwire Rope is busy at work. In the mines and the quarries. In the logging camps and the oil fields. With the fishing fleets and in materials handling. In all of these fields, Wickwire Rope has a record of economical and dependable performance that can't be beat.

**every industry benefits from wire rope**

## WICKWIRE ROPE



PRODUCT OF WICKWIRE SPENCER STEEL DIVISION  
THE COLORADO FUEL AND IRON CORPORATION



2695

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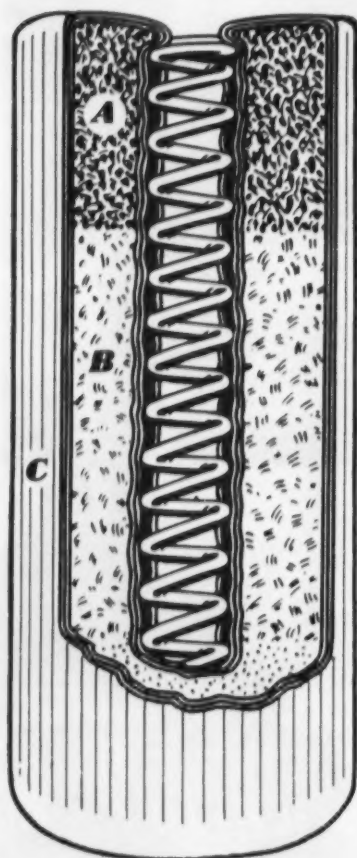
(Advertisement)

# COMPLETE OIL FILTRATION IS NEVER SIMPLE

by CHARLES A. WINSLOW

Conditions under which most industrial engines operate may introduce grit, sludge, acid or moisture into lubricating oil. To remove these engine-destroying materials requires FULL FLOW filtration under cold and hot operations, without incurring back pressures, and with complete protection to critical surfaces in case of any part failure. Contaminants must be removed without affecting additives.

This complete protection for lubricants is not simple. It can best be accomplished with the four materials combined in Winslow CP\* Elements. These elements are also designed for definite and predictable flow and pressure characteristics. When they are correctly applied, the oil is *all* filtered under *all operating conditions*, through these successive steps:



(A) CP\* Material accepts varying percentages of oil flow, to maintain acceptable pressure.

(B) Combined thread and cellulose absorbs moisture and gums.

(C) The patented outside wrapper is an effective filtering medium.

## CP\* Material Gives Automatic Pressure Control

*The specially treated CP\* material accepts varying percentages of the total oil flow, as conditions dictate; thus maintains acceptable pressure losses without opening by-pass valves, and insures 100% Full Flow filtration at all times. All harmful particles are removed from the oil.*

## Cotton Thread Combined With Cellulose Fibre

The cotton thread is porous and fluffy for full dirt retention, and creates a multitude of intricate passages to catch minute particles. It is combined with clean, dry cellulose fibre, which prevents packing and channeling of the filtering media. This selected fibre also absorbs gums, moisture and varnish that may be present in the oil.

The fourth filtering media is the patented double wrap of tubular cotton on both the inside and outside of the Winslow element.

## Proportion of Materials Determines Pressure

In a Winslow CP\* Element the ratio of filter materials determines the rate of oil flow through the element. This ratio is set for each size and type CP\* element, based on laboratory and field tests.

## Element Packed for Progressive Filtration

Each Winslow CP\* Element has the same amount of material at the outer area as there is near the center. Obviously the material is more condensed at the center. This forms V-shaped traps for progressively smaller particles, increasing the capacity and useful life of the element. The tubular cover is also squeezed tighter at the center and is more open at the outside.

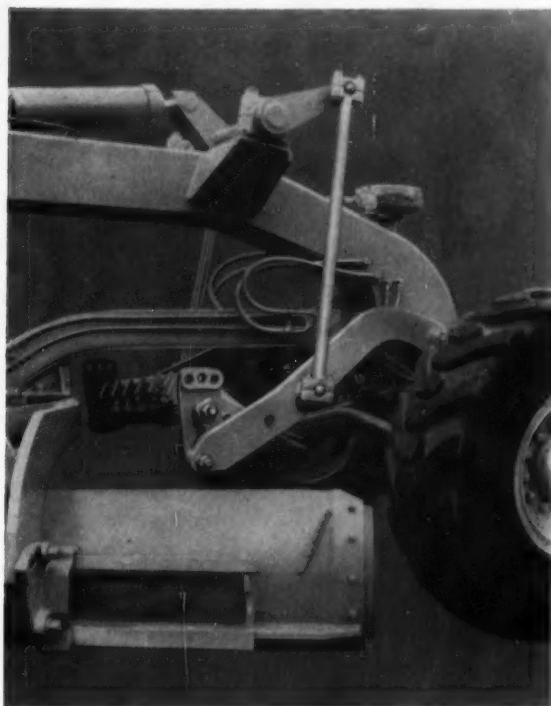
This combination of exclusive Winslow features and materials has been proved for years, under severe engine service, to be the most efficient and in the long run, the most economical method of lube oil filtration. We will be glad to give you complete data on filters and elements for your equipment. Please write or call the nearest office.



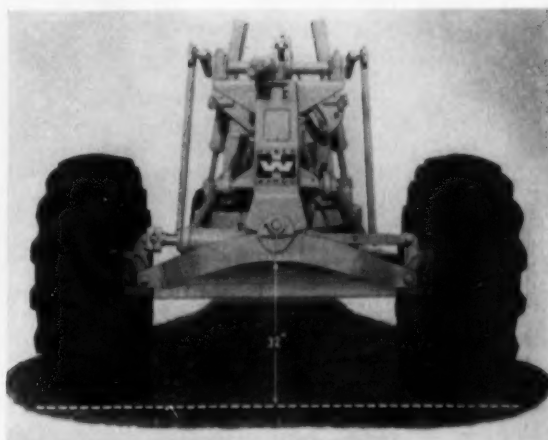
**WINSLOW FILTERS** \*CP is fully protected by patents and trademarks

Winslow Engineering Company

4069 Hollis Street • Oakland 8, California



NO NEED TO REMOVE SCARIFIER TEETH when rotating the blade on the new Huber-Warco. A full 360-deg rotation is possible, eliminating time to deadhead back and make another pass.



UNUSUALLY HIGH FRONT AXLE CLEARANCE of 32 in. is a feature of the new model, as are the leaning front wheels controlled from the cab through a hydraulic cylinder on front axle.

shift under full load at wide open throttle without interrupting the power flow from the engine to the load.

The tail shaft converter automatically adjusts engine rpm to meet load conditions at any ground speed set by the operator.

An unusual tandem-drive design puts the driving axle several inches above the center line of the wheel axles, providing extra transmission height for greater working clearance.

## GOT YOUR EYE ON A BIG JOB?



When time comes to make your bid, make sure you have the extra advantage of the lowest bond rates available. They can often make the difference between acceptance and rejection.

Ask your Indemnity Company Agent to establish your credit line now with Indemnity Insurance Company of North America. This leading independent company offers the lowest bond rates\* to contractors of skill, integrity and responsibility.

You save money, too, with Indemnity's low rates. And an established credit line assures you of getting bonds on future jobs without delay. See the Indemnity Company Agent today.

\*Sorry, Indemnity's low rates are not available in Texas and Louisiana.



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**DREDGE WITH TWIN DRUMS** pulls  $\frac{3}{4}$ -yd scraper through the silt inside culvert and adjacent areas to clean out the bottom. Dredge

dipper then loads out spoil material for disposal. Use of Sauerman scraper eliminated cofferdamming and pumping.

## Cable-Operated Scraper Cleans Culvert



**CRESCENT SCRAPER DUMPS** another heaping load in front of dredge powering it. Barge at left received dredged silt.

**SCOOPING OUT SILT** from the bottom of a railroad culvert, under several ft of water, was accomplished quickly and easily with a Sauerman Crescent scraper for the Monongahela & Ohio Dredging Co., Pittsburgh. Purpose was to clean out culvert to make room for a 12-in. gas line next to an existing water line.

Low clearance made it impossible to bring other excavating equipment directly into the culvert. Monongahela & Ohio Dredging placed a dipper-type dredge into the stream opposite one end of the culvert.

*(Continued on page 121)*



**TAIL BLOCK** for double cable line passing completely through culvert was mounted on rear of crawler-tractor on opposite shore.

# BE LOW BIDDER on jobs like this one...

On the huge job at the El Segundo plant of Douglas Aircraft Co., Inc., SUPERIOR CEMENT FINISHING MACHINES were used. You too can win on jobs like this... be low bidder... make extra profits when you depend on Superior.

Here's what the El Segundo Plant Engineering Department had to say about SUPERIOR... "In constructing the three new manufacturing buildings

and the contiguous yard areas for the Douglas A4D Skyhawk, the cement contractors laid approximately 446,200 square feet of concrete slab of 5 to 6 inches thickness. Part of the surface was floor finished and the balance traffic finished. Our engineers estimate that one SUPERIOR Mechanical finisher does the work of at least six professional finishers." Mail the coupon below for complete information.



Douglas A4D Skyhawk, El Segundo Plant, Douglas Aircraft Co., Inc.

## SUPERIOR...BY NAME AND PERFORMANCE

Precision-engineered after seven years constant on-the-job use, SUPERIOR... in manufacture. Rugged, to give maximum service at unbelievably low maintenance cost.

### Only SUPERIOR has ALL of these features:

Successful combination floating and troweling blade (one set of blades for floating and finishing).

Tangential arm mounting on a 4-point suspension (greater stability, most accurate running balance).

Four blades for the truest, really level floor (a three-legged stool fits any floor, a four-legged stool NEEDS a level floor).

Stationary guard ring attached to the base (more blade protection. Machine works close to walls and obstructions).

Crank adjustment for blades (added leverage assures easiest, most accurate tilting while in operation).

Mercury switch for the greatest safety (insures against runaway, yet never a dead engine).

Distributors and Dealers throughout the country (parts and service are always available).

Two rugged sizes available, both with all of the deluxe features.

Illustrated: Senior SUPERIOR, 44"; also Junior SUPERIOR, 35"



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### SUPERIOR CEMENT TOOL CORP.

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Dept. M-4

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☐ Please have sales representative call on me

Name

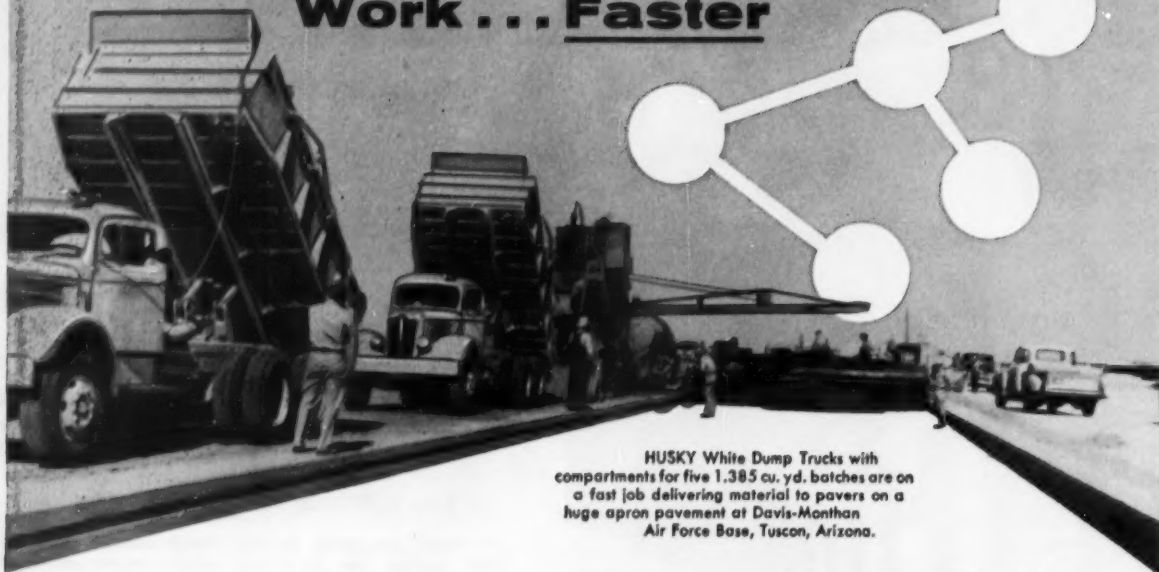
Position  Company

Address

City  State



# Modern WHITE Trucks Get Today's Call for More Work . . . Faster



HUSKY White Dump Trucks with compartments for five 1,385 cu. yd. batches are on a fast job delivering material to pavers on a huge apron pavement at Davis-Monthan Air Force Base, Tuscon, Arizona.

**YOU'LL ALWAYS** see White Trucks on the tough jobs where schedules are tight, loads are big and working conditions rugged.

In the big and busy construction industry, Whites are doing all kinds of jobs with remarkable records of time and cost saving.

In your business, too, Whites are a big help—especially where there is need for more work . . . faster . . . at lower cost. Because Whites are engineered right to job specifications. They are built to do your job faster, better and more economically.

Have a tough transportation job that has you puzzled? Call your White Representative . . . now!



This White Model 302264 six-wheeler hauls 6 yards of mix with 255 gallons of water within legal limits for Cleveland Builders Supply Co., Cleveland, Ohio.



**THE WHITE MOTOR COMPANY**  
Cleveland 1, Ohio

**For More Than 50 Years The Greatest  
Name In Trucks**

**MODERN DESIGN**

**MODERN POWER**

**MODERN USEFULNESS**

It takes all three! And White puts them together in its complete line of motor trucks engineered to exact operating conditions for new usefulness, new economy and new efficiency.

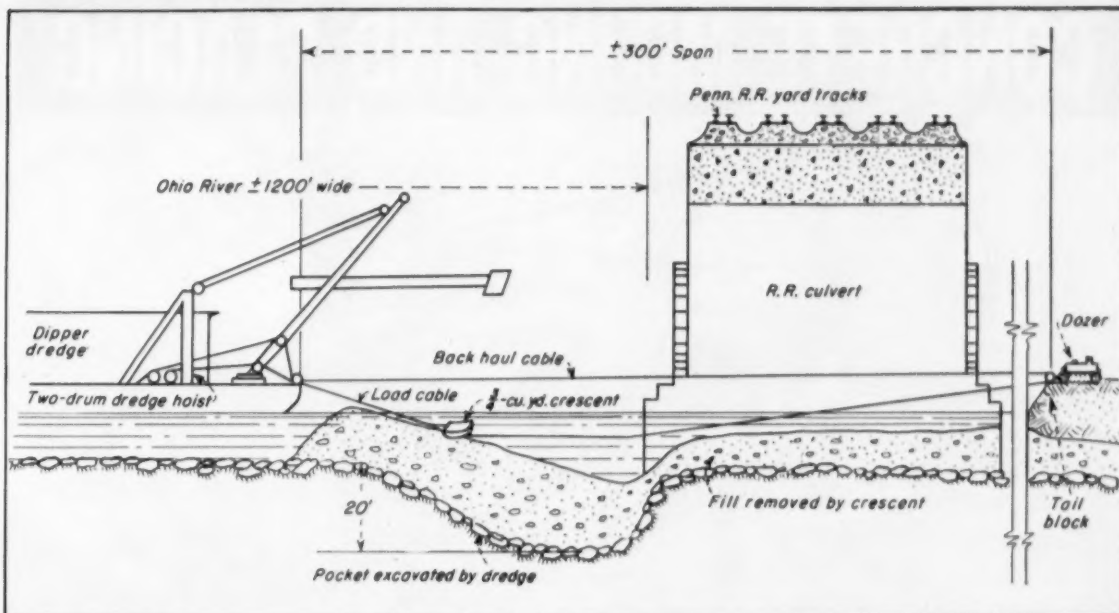
**MODERN DESIGN!** There's nothing like the White 3000 with the power-lift cab. New payload advantages! Exclusive design and weight distribution.

**MODERN POWER**—yes! With the amaz-

ing higher-compression White Mustang Engines in a range of sizes up to 200 hp. More power per pound of engine weight!

**AND USEFULNESS!** It's the big pay-off with the White 3000 because these handsome, new Whites get more work done, in less time, at lower cost.

**There's a White That Will Cut Your Costs . . . Earn Money For You—Do More Work.**



SCHEMATIC DRAWING shows how cable from the two-drum hoist aboard the dredge passed through the culvert and around the tail

block on the tractor anchored on the other side. Excavated pocket in foreground was dumping ground for scraper.

Then a Crescent  $\frac{3}{4}$ -yd scraper, powered by the dredge's two-drum hoist, was put into service, the tail block for the cable line being mounted on the back of a crawler tractor stationed on shore opposite the far end of the culvert.

The cable line was run directly through the culvert and, as the scraper was pulled through, it picked up silt and deposited it in front of the dredge for loading out. The dredge also kept a pocket excavated into

which the scraper could dump silt scooped off the bottom.

This equipment removed enough silt from the culvert and surrounding area in 8 days to permit laying of the gas line. On a previous job, the 12-in. water line had been laid inside the culvert by building cofferdams on each side; pumping the water and residue out and laying the line in the dry. The slower cofferdam method took about 1 month.

## Deep Digging Rake



SPECIAL RAKE for the International TD-9 tractor is designed by contractor Rubin Construction Co., of Florida to help it lick a

difficult clearing problem. The rake with special teeth, dug down 4 ft to remove pine stumps and scrub palmetto brush.

# CONCRETE MIXING AND PLACING



POWERED CARTS handle large quantities per unit; require rigid runways at least 5 ft wide to permit dumping over the side. Average

capacity at 500-600 ft one way is 15 to 20 cu yd per hr per cart. Their use often eliminates multiple towers.

## 12. Handling and Placing Concrete

**KEYNOTE OF PRESENT-DAY METHODS** of handling and placing concrete is "elimination of segregation of the concrete mix from the mixer to place in the forms." All modern and approved equipment must fulfill this strict requirement to produce the required strength and quality of the concrete.

Because of scientific control of concrete production and handling, engineers and contractors can now produce and place concrete of predetermined strength and characteristics. This art has created many uses for concrete that were not

By A. F. GARLINGHOUSE\*

Gar-Bro Manufacturing Co.

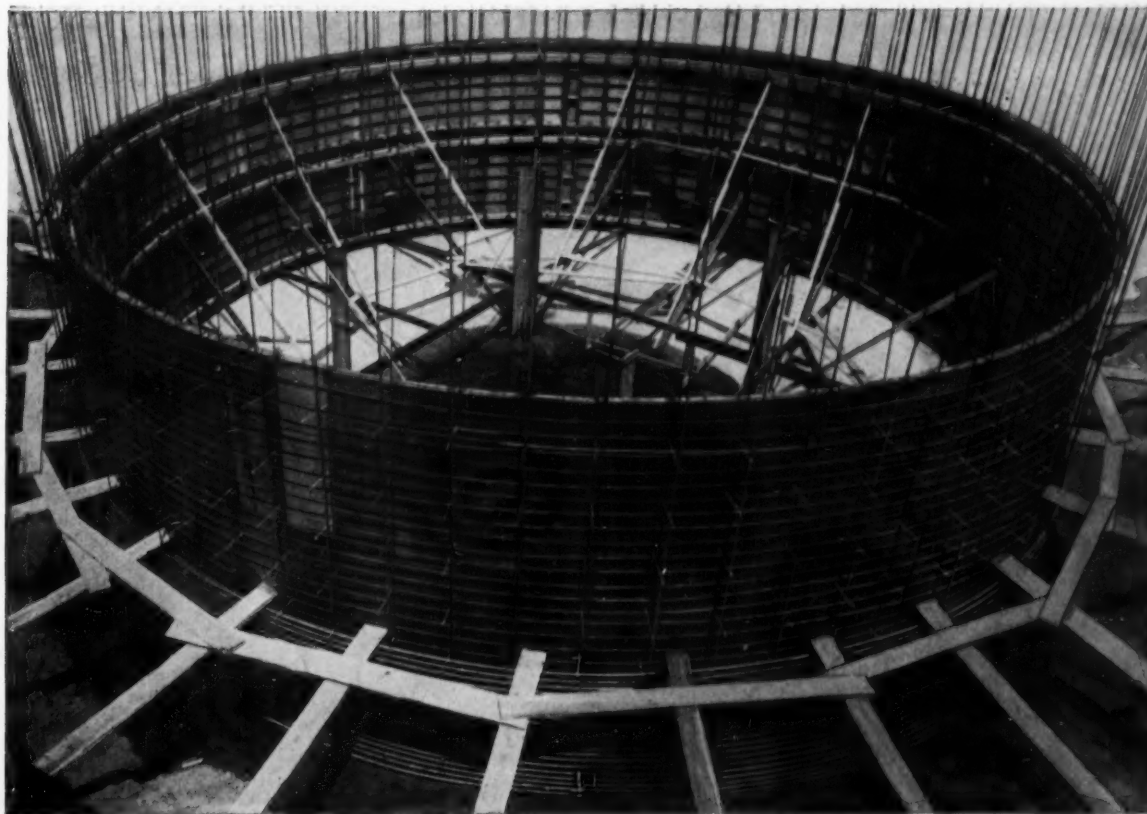
possible in prior years. Precast slabs, beams, and other members, tilt-up walls, thin-shell roofs, and prestressed concrete, are only a few of the newer forms which have become generally accepted by engineers and architects.

Precision proportioning has become the standard, and concrete of the required quality is now predetermined by the mix. This art of precision proportioning, includ-

ing accurate water measurement within the mix, has been the greatest influence in present-day methods of handling, transporting, and placing concrete.

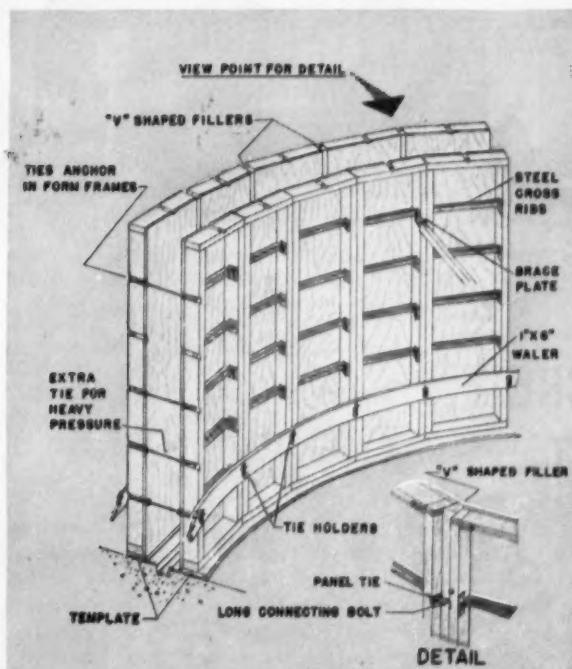
During the 20's and early 30's, the most universal method of handling concrete was by elevating towers with tower buckets hoisted  
(Continued on page 126)

\* Al Garlinghouse is well known for his long association with the concrete industry in designing and manufacturing concrete-handling equipment. Gar-Bro is a division of Garlinghouse Brothers.—EDITOR



Setting Up Forms for Sewage Disposal Tank, St. Louis County, G. L. Tarlton Co., G. C.

## SYMONS FORMS for CURVED WALLS



Symons Rib panels are used with V-shaped fillers at each joint. Sturdy wedge-bolts secure the three pieces together and also hold the ties in place. Curved walers (see photo) or 1" x 6" flat walers (see perspective) may be used for alignment.

Contractors report savings of \$5000.00 on forming costs of Sewage Disposal Plants. Engineers are well pleased with the smooth finished walls.

Symons offers a complete engineering service to solve your toughest forming problems. Send us the plans for your next job and a complete layout and cost sheet will be furnished without charge.



**Symons**

CLAMP and MFG. COMPANY

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Please send me the items checked:

- ☐ Information regarding Symons Panel Forms
- ☐ Information regarding Column Clamps, Shores, Bar Ties

Name

Address

City  Zone  State





**BIG STEEL GIRDER OVER THE SIDE** is set in place using a 55-foot boom with the Tarlton Company's American Truck Crane. The operator experienced no difficulty in

booming way out while lowering steel into the hospital's basement. American's power-controlled boom lowering assures fast, yet safe operation.

## SETS STEEL, POURS CONCRETE, CLAMS ROCK 65 FEET OUT

**AMERICAN TRUCK CRANE SHOWS  
'EM VERSATILITY IN MISSOURI**

The American 300 Series 25-ton Truck Crane recently purchased by the G. L. Tarlton Contracting Company of St. Louis has proved itself a master in many departments. On the building-expansion project for St. Louis' Jewish Hospital, the powerful American Crane clamshelled pier holes, set steel and poured concrete with an efficiency and ease that pleased its experienced operator. For instance, while

clamshelling with a 75-foot boom, the American Truck Crane removed rocks and dirt from pier holes 65 feet out. With a 55-foot boom, it easily set big heavy transformers into the basement—over the side of the rig. Like leading contractors across the country, the Tarlton Company has found that American's versatility, power and dependable performance help keep work flowing smoothly on their projects.



**"A REAL ALL-AMERICAN,"** says Tennyson Fuller of the American Truck Crane. An operator with the Tarlton Company for 17 years, Tennyson says the American is by far the easiest and smoothest operating machine he has ever used. "American's controls are within easy reach, too," he says. "Some machines get you all tired out just reaching for the controls." The roomy, ventilated cab with its wide field of vision is another American feature which especially impressed Tennyson Fuller.

**COMPLETE FACILITIES** for handling every phase of manufacturing from the raw metals to the finished product play a large part in giving American owners top quality. The photo below shows a portion of the foundry at American Hoist where huge steel and iron castings are produced. Here, a dozen different grades of metal are cast; each individual part getting the metal best suited for maximum wear and performance. For factual, helpful information on American Crawler and Truck Cranes, see your American Distributor, or write American Hoist & Derrick Co., St. Paul 1, Minnesota.



**POURING CONCRETE**—setting steel—digging with a clamshell—all in a day's work with the American. Changing boom lengths is simplified with "quick-change" pin-connected booms. Alloy steel boom with tubular lacing gives extra reach and capacity without extra weight.

**77-YEAR BACKGROUND** in building Cranes and Hoisting equipment has made American synonymous with quality on the world's biggest and toughest jobs. When you buy American, you get the advantages offered by over three-quarters of a century of engineering and on-the-job experience. Yes, since 1878, American equipment has been first choice with construction pioneers and leaders in every corner of the world.





**BUCKETS HANDLED BY CRANES** are used to pour untold thousands of yards of concrete each year. Here, flat-bed trucks bring loaded buckets from batch plant to the crane.



**WHEELBARROW** is a useful tool for short hauls and small jobs. Here, concrete is loaded into wheelbarrows from two-gate portable hopper which is charged by truck mixers.



**HAND CART** is loaded from self-service surge hopper on floor above concrete pump which supplies upper floor pouring operations. Pump lines have been successful over long distances.

within the towers and dumped into a receiving hopper. From the hopper the concrete was transported by wheelbarrows, hand-pushed concrete carts, or "chuted" through steel-troughed chutes to place.

Concrete-distributing plants, using towers and chutes, were often complicated installations, particularly on dam construction. In fact, all of the dam-construction projects either used a complicated chuting system or cableways, depending on the characteristics of the job, terrain, and other governing features. During those pre-"water-cement" ratio theory days, over-watered concrete mixes were common, permitting the use of chutes and hoppers of almost any conceivable design.

During the early 30's, engineers specified more accurate control of proportioning the concrete mix. Weighing instead of volume measurement of aggregates, moisture control within the aggregates, and accurate water-cement ratio control produced better and more-plastic concrete. Then attention was given to elimination of mix segregation in the handling and placing procedures, which revolutionized concrete handling and placing methods.

Vertical controlled transfer or discharge of the concrete should always be a "must" when handling concrete. The details of equipment use and procedure vary on every construction project, but in all cases, the method of handling and

placing the concrete is of vital importance, and the selection of the proper equipment should be carefully considered.

#### Transporting Concrete

Concrete - transporting equipment consists of truck mixers, agitating and non-agitating bodies on trucks, concrete buckets on trucks or cars, hopper cars, pneumatic-tired power-driven concrete carts, hand-pushed concrete carts and wheelbarrows, as well as concrete pumps and chutes, and belt conveyors. The latter two should be used only to a limited extent. The method used should not place a restriction on consistency of the concrete. (Continued on page 128)



# Your Old Saw is Worth Big Money!

Trade it in on a new super-duty SKIL Saw and save **\$22<sup>50</sup>**

Own a great new SKIL Saw! Power increased up to 107%. Blade speed up 40%! Lighter weight and greater performance than ever before. At the lowest prices in history.

## Choose from these two models

**NEW SKIL SAW 77 (7¼" Blade—Super Duty)**—Speed increased 40% to 4500 r.p.m. and weight cut to 15¼ lbs. Power output boosted 100%. Depth of cut 2½ inches—Bevel cuts 2" dressed lumber at 45°. Most popular SKIL Saw for all-around carpentry—the standard for general construction. Power to cut wet lumber or tough materials such as metal, stone, compositions.

Price, New Model 77 less case..... \$112.50  
Trade-in credit..... 22.50  
**YOUR COST, ONLY..... \$ 90.00**

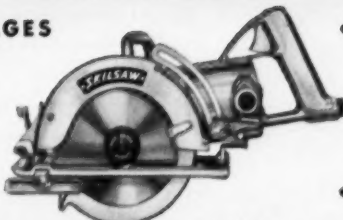
**NEW SKIL SAW 825 (8¼" Blade—Super Duty)**—Speed boosted 34% to 4000 r.p.m. and weight reduced to 17¼ lbs. Power output increased 107%. Depth of cut 2½ inches. Bevel cuts 2" rough lumber at 45°. A powerful, super duty saw, ideal for use on either residential or commercial construction. Powered to easily cut 2" rough lumber—wet or dry—as well as many other tough and resistant materials.

Price, New Model 825 less case..... \$134.00  
Trade-in credit..... 22.50  
**YOUR COST, ONLY..... \$111.50**



## LOOK AT THESE ADVANTAGES

- LESS FRICTION! All Ball Bearing
- CONVENIENT! Full Size Top Handle
- VERSATILE! Foot Design Permits Right or Left Cuts
- MORE SAFETY! Satin Finish Reduces Glare



- SAFER! Telescoping Guard
- CONTROL! In-Line Rear Handle
- ACCURATE! Blade Visible at Cut
- CLEAR SIGHTING! Effective Sawdust Blower
- HIGH TORQUE—Low-Ratio Worm Drive

**Limited Offer!** Hurry, this saving opportunity ends May 31, 1955. It is made now only because the response to our introductory Trade-in Program last Fall was so overwhelming that many builders were disappointed. Offer positively must close May 31, 1955.

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Factory Branches in All Leading Cities

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5033 Elston Ave., Chicago 30, Ill.

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☐ Have a salesman call to make a demonstration.

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Company \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



## SPECIFICATION CHECK LIST

	CHECK OR NOTATION		CHECK OR NOTATION
<b>Aggregate—Number of sizes</b> .....		<b>Method of Measuring Water</b> .....	
Rock.....		Meter on mixer.....	
Sand.....		Independent meter.....	
<b>Maximum Size of Aggregate</b> .....		Weighing.....	
1½" size.....		<b>Air-entraining admixture</b> .....	
3" size.....		<b>Permissible time—Mixing to Final Placing</b> .....	
6" size.....		<b>Total concrete on project—cu. yd.</b> .....	
<b>Method of proportioning</b> .....		<b>Per hour mixing capacity required</b> .....	
Volume.....		<b>Size of mixer required</b> .....	
Manual Weighing.....		<b>Mixing time per batch</b> .....	
Beam Scales.....		<b>Estimated placing capacity per hour</b> .....	
Full Reading Springless Dial Scales.....		Elevated into walls—cu. yd.....	
Separate Material Weighing.....		In footings—cu. yd.....	
Cumulative Material Weighing.....		In mass concrete—cu. yd.....	
Aggregates & Cement.....		<b>Allowable "Free Drop" distance of concrete</b> .....	
Aggregates only.....		In walls.....	
Automatic Weighing.....		In footing & mass concrete.....	
Aggregate.....		<b>Maximum thickness of horizontal layers</b> .....	
Cement.....		<b>Underwater placing requirement</b> .....	
Recording required.....			
Batch counter required.....			
Interlock on Mixer required.....			
<b>Consistency Requirement</b> .....			
Sacks of cement per cu. yd.....			
Gallons of water per sack of cement.....			
Minimum slump required in walls & footings.....			
Minimum slump required in mass concrete.....			

**REMARKS:**

## JOB CONDITIONS CHECK LIST

	CHECK OR NOTATION		CHECK OR NOTATION
<b>Concrete Plant</b> .....		<b>Preliminary conclusions</b> .....	
Cu. yds. per hour required.....		Elevate by crane & concrete bucket direct to place.....	
Portable mixer on-site—size.....		Elevate by crane & concrete bucket direct to hopper.....	
Stationary mixer on-site—size.....		Elevate by concrete tower to hopper.....	
Transit mixer delivery.....		Elevate and transport by pump.....	
Pre-mixed & truck delivery.....		Handle by hand pushed carts.....	
<b>Concrete</b> .....		Handle by power carts.....	
Total cu. yds.....		Place direct to forms.....	
Cu. yds. in footings.....		Place by collection hoppers.....	
Cu. yds. in ground floors.....		Place by rubber elephant trunk.....	
Cu. yds. in upper floors.....		Place thru flexible steel drop chute.....	
Cu. yds. in walls.....		Place by chutes.....	
Cu. yds. in mass concrete.....		Place direct from transit mixers to forms.....	
<b>Hauling distances on job</b> .....			
From job mixer on site—feet.....			
From transit mixer or portable hopper—feet.....			
From tower or bucket hopper on floors.....			
<b>Elevations &amp; Dimensions</b> .....			
Maximum height of structure.....			
Area dimensions of structure.....			

**REMARKS:**

## SUMMARY OF CHECK LISTS

CHECK OR NOTATION		
<b>Batching Method</b>		
Wheelbarrow or material charts		
Platform scales		
Batching bin capacity		
Batching bin compartments		
Weighing requirement		
<b>Mixer Requirement</b>		
Job mixer—size		
Transit mixer delivery		
Pre-mix & truck delivery		
<b>Handling Equipment</b>		
	Size	No. Required
Portable Hoppers		
Floor Hoppers		
Receiving Hoppers		
Single Gate Hoppers		
Double Gate Hoppers		
<b>Job Transporting Equipment</b>		
Wheelbarrows		
Hand pushed carts		
Power carts		

	CHECK OR NOTATION	
	Size	No. Required
<b>Concrete buckets &amp; crane</b>		
bucket size		
bucket type		
<b>Concrete tower</b>		
bucket size		
<b>Placing Equipment</b>		
Collection Hoppers		
Cart charging type		
Bucket charging type		
Rubber elephant trunk		
Flexible steel drop chutes		
Concrete chutes		
Bucket attachments		
Accordion hopper		
Sub-hopper & trunk		

### REMARKS:

### Transporting Concrete . . .

• **Wheelbarrows** with pneumatic or cushion tires, are useful on small jobs where the wheeling distance is short; suggested maximum distance, 200 ft. Average capacity is 1 to 1½ cu yd per hr per wheelbarrow.

• **Hand-pushed carts** with pneumatic tires, in 6- or 8-cu ft capacity, operated on fairly level, rigid runways, are in universal use on all types of jobs. Suggested maximum distance is 200 ft. Average capacity is 3 to 5 cu yd per hr per cart.

• **Power carts** on pneumatic tires, gasoline-engine driven, of 9- to 12-cu ft capacities are coming more and more into universal use. Due to their speed, flexibility, and capacity, much larger quantities can be handled per unit. Runways of at least 5-ft width and of rigid construction should be provided to permit dumping over the side of the runway.

Suggested maximum distance is up to 1,000 ft. Average capacity at 500 to 600 ft one way, is 15 to 20 cu yd per hr per cart. The use of power carts on building construction saves multiple towers, because of the long travel distances possible, as compared with

(Continued on page 130)



**COMPLICATED CHUTE SYSTEM** carried free-flowing mixes from hoist tower for mass concrete placement back in the 20's. Design of today's low-slump mixes would prohibit use of long chutes.

## CONCRETE . . . Continued

hand-pushed cart operation.

- **Concrete pumps.** Transporting the concrete through steel pipe lines is a method of particular advantage for use in tunnels and in otherwise inaccessible locations where either space is limited or the job conditions are difficult in other ways.

The equipment consists of a heavy-duty horizontal-piston-type pump of rugged construction. Limitations are based on the size of pipe, horizontal and vertical distances, and number of elbows in the pipe line. Capacities range from 20 to 65 cu yd per hr, and the maximum size of aggregate is 3 in. One advantage of pumping

is that workable concrete which will not segregate must be used.

- **Concrete buckets,** handled by cranes, trucks, trains and cableways, are an efficient means of concrete transport and placing for many types of construction. Their description and use will be covered next month.

## Hook-and-Ladder Methods Transport Girders

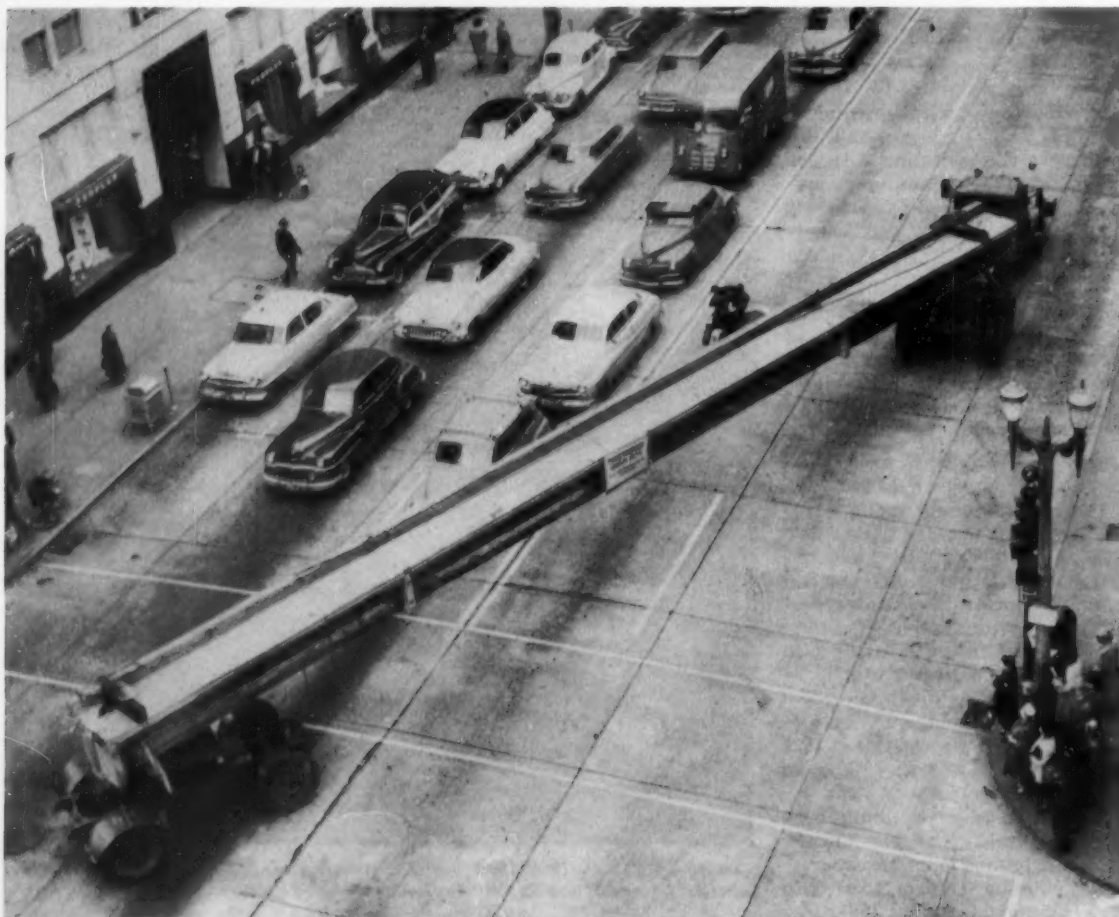
**PRESTRESSED CONCRETE** bridge girders 80 ft long, 4 ft wide and 3½ ft high, weighing 20 tons each to be used on a bridge spanning the White Salmon River in Washington, necessitated a special arrangement to transport them 140 mi from Tacoma to the southern end of the state.

The hauling contractor, The Sunnen Heavy Hauling Co., of Tacoma,

used a truck for supporting the front part of the girder and a 6-wheel trailer to carry the rear. The trailer resembled the back end of a hook-and-ladder fire truck.

A cubby-hole cabin seat was built on top of the trailer and underneath the girder. A steering wheel and gear allowed the man in the trailer seat to turn the front wheels of the trailer and safely

negotiate the long rig around the sharp turns of city streets, as illustrated in the photo below. A telephone connected the man in the trailer with the driver in the cab at the front, so that both could coordinate their driving. There were no supports between the front and rear ends of the girders. All told, six girders were transported in this manner, with no mishaps.



# LICKS 5 MILES OF TROUBLE



Chunks of rock had to be blasted loose. The high arch of the 22-B dipper enabled it to load and dump this rock without jamming or slowing the cycle.

## ON DELAWARE SEWER TRENCHING JOB

When the James Julian Construction Company contracted to dig five miles of sewer trench along state highway 141 near Wilmington, Delaware, Superintendent J. H. Hubbard figured he had trouble on his hands — and he did. The material turned out to be 40 per cent solid rock and 60 per cent hardpan clay. It had to be trenched 9 ft. deep for 30-in. mains and 12-in. secondary lines.

Superintendent Hubbard summed up his experience with the 22-B's by remarking, "I didn't quite appreciate how tough these 22-B machines were until we started this job. In digging like this you soon learn to respect a machine for its ability."

There's a reason why there are more Bucyrus-Eries working in rock than any other machines. They have the extra stamina for rough going, as well as the extra production ability for any job. Let your Bucyrus-Erie distributor show you why.

95E55C



South Milwaukee, Wisconsin

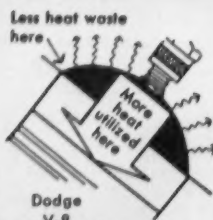


Front-to-rear taper of dipper speeds dumping, means extra clearance in wide trench work.



The box section boom and dipper handle eliminate dead weight, yet are plenty strong for tough digging. The entire front end can be positioned below cab height for safe, easy clearance in traveling.

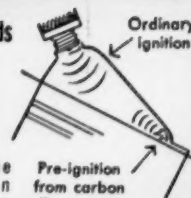




### Less surface area, less heat lost

Rounded exclusive Power-Dome combustion chamber has less surface area than irregular chambers. Thus less heat is dissipated into cooling system, more heat is utilized within the chamber to expand gases more fully, give greater thrust to piston.

### Dodge avoids power-stealing hot spots



Power-Dome combustion chambers are rounded, have no corners or pockets in which carbon deposits can build up. Such deposits become red-hot, pre-ignite the fuel-air mixture, cause engine knock and loss of power, lead to costly repairs.

### Short flame travel, better valving



With Power-Dome combustion chambers, the spark plugs are located at or near the center. Thus the flame has a shorter distance to travel, combustion is more even. Large unrestricted valves mean better "breathing" and greater efficiency.

# How you get more power, use less gas with POWER-DOME V-8 truck engines!



Truck owners everywhere report more power and less fuel consumption with new Dodge Truck Power-Dome V-8 engines. AAA-supervised tests proved the power of Dodge Truck V-8's in a history-making Pikes Peak climb . . . proved the economy of Dodge Truck V-8's in a sensational 22-mile-per-gallon Economy Run.

Look at the pictures and captions shown on this page—then, for further details and an eye-opening road test, see your dependable Dodge Truck dealer!

## DODGE "Job-Rated" TRUCKS

A PRODUCT OF CHRYSLER CORPORATION



DRILLING CREW quickly sets up three air-leg drills in Philadelphia tunnel heading. Workman standing on car-mounted plat-

form inserts steel in chuck, as another holds drill with air-leg bucked against cleat. Two other drills are operated on tunnel floor.

## Air-Leg Drills Speed Tunneling

LIGHTWEIGHT AIR-LEG DRILLS that are easy to setup and economical to operate are doing a fast job of pushing a sewer tunnel through Philadelphia. The 9-ft dia bore has room for only three of the drills, but they can reach any part of the face without difficulty. One unit is set up on a car-mounted platform and the other two work on either side.

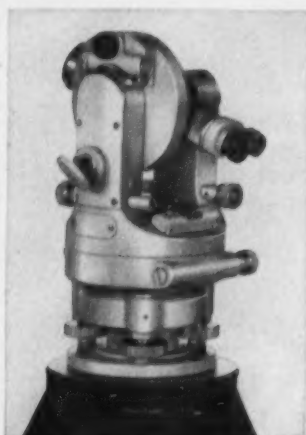
Little time is lost changing positions, because there

## SURVEYING NEWS

# NEW THEODOLITE SETS UP QUICKLY, EVEN IN THE WIND



Has this been your problem? Now—old-type mechanical plumb-bob replaced by can't-miss optical principle



- Improved Theodolite reads horizontal and vertical circles simultaneously, through same eyepiece
- Reads direct to 1 min. with no matching of lines—no parallax
- Amazingly blur-free—small, compact, moisture-proof, dust-proof.

Mail this coupon for details

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| <input type="checkbox"/> Other levels  | <input type="checkbox"/> Callimeters                      |
| <input type="checkbox"/> Transits      | <input type="checkbox"/> Stands                           |
| <input type="checkbox"/> Combinations  | <input type="checkbox"/> Tripods                          |
| <input type="checkbox"/> Theodolites   | <input type="checkbox"/> Repair of my present instruments |

NAME .....

ADDRESS .....

## AIR-LEG DRILLS . . . Continued



EIMCO MUCKER loads blasted rock into Mayo car. When loaded, car is pushed by mucker about 50 ft to two-track California turn-out where an empty is picked up.

are no cumbersome booms to adjust. One workman kicks the butt end of a Gardner-Denver air-leg against a projection, as a second workman inserts the Bethlehem  $\frac{7}{8}$ -in. alloy steel into the drill chuck. When the hole is collared, the drill feeds the Timken  $1\frac{1}{2}$ -in. bit into the mica schist rock as a workman maintains a slight pressure on the handle.

### Low Air Consumption

Drilling is done faster than with conventional equipment because the hole is smaller. And if there is any trouble with the drill, it can be quickly replaced with another. Another advantage is low air consumption. Only 300 cfm is required at each heading. A Chicago-Pneumatic 600 cfm compressor pumps through a 4-in. line to both headings.

Square Construction Co., of Baltimore, is drilling a 28-hole pattern with a V-cut core. Although the air-leg feed is only 4 ft, 6-ft. holes are drilled without changing steel by simply moving up the air-leg.

When the drilling is completed, holes are packed with the Dupont Gelex No. 2 and tied into several delay fuses. After the shot, fumes are pulled out through a Naylor 16-in. pipe suspended from the roof. An Eimco Model 21 mucker moves right in and loads Mayo cars one at a time. It pushes each



TUNNEL SHAFT 35 ft deep and 15 ft in dia is made of Commercial liner plates. Crawler crane hoists and dumps buckets.

car back about 50 ft to one side of a turn-out, and picks up an empty on the other side. The two-track turn-out rests on the single tunnel track, and is skidded ahead on top of the rails by a Goodman locomotive. With this type of turn-out, California switch made of two jumper-type Y-switches must be used.

The one-track line will eventu-

**SUCCESSFUL FLEET OPERATORS  
ENDORSE PHILLIPS 66  
HEAVY DUTY MOTOR OILS!**

**Bus company in Oklahoma**, operating over 140 city buses, reports: Overhauls extended from 65,000 miles to better than 125,000 miles since changing to Phillips 66 —No loss of power from sludge formation—Increased life for crankshafts and bearings—35 percent less oil consumption—Considerably reduced engine deposits.

**Cab company in Texas**, operating 25 Ford radio cabs, using Phillips 66 Heavy Duty Motor Oils for nearly seven years, reports: Top performance for at least 125,000 miles with no repairs, only tune-ups—No valve or bearing trouble since changing to Phillips 66.

**Freight transportation company in Oklahoma**, operating 80 Diesel tractors and 173 trailers, using Phillips 66 Heavy Duty Motor Oils since 1946, reports: Remarkably clean engines at overhaul—Little sludge or wear.



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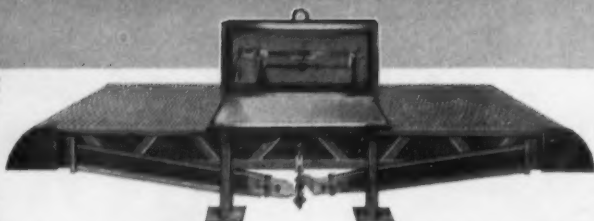




# THURMAN PORTABLE SCALES

*Need NO Coddling*

*... many moved dozens of times*



Truck scales as well as other construction and road building equipment can't be pampered or coddled. They've got to be able to "take-it" and perform properly under rugged operating conditions. Thurman Portable Truck Scales have been designed to meet these tough requirements of the industry. In addition to being portable and rugged these scales must perform accurately under all conditions.

Hundreds of Thurman Scales have been moved from job-to-job, some to over 30 different locations during a period of several years. Because the accuracy is carefully built into these sturdy scales—it remains there.

Installation on-the-job takes but a few minutes. Place the scale, as a unit, on firm, solid ground, "ramp-up" earth or gravel at both ends and you're ready to weigh. For more complete information on deck lengths (18 — 43 ft.) and load capacities (20 — 50 tons), write for our folder: "Accurate, Portable Weighing".

Precision Products Since 1918  
**THE THURMAN MACHINE COMPANY**  
Scale Division

DEPT. C, 156 NORTH FIFTH STREET • COLUMBUS, OHIO



## Other Precision Scales by THURMAN

Batching  
Electronic

Industrial  
Liquid Weighing

Pipe Lever-Hopper  
Pit Scales

Warehouse  
Wheelbarrow

## AIR-LEG DRILLS . . . Continued

ally run the full length of the 4,800-ft tunnel. Muck is hauled by locomotives to one of two shafts, each 35 ft deep and 15 ft in dia. Shafts formed with Commercial liner plates are serviced by a crane. Liner plates also are used inside the tunnel to support the roof in unstable areas.

Crews work only 9½ hr per day because blasting is not permitted in the area at night. Production varies considerably because of mixed faces. In a good rock heading, however, the contractor usually gets two shots a day.

F. Ragonese is project manager and V. Scaraville is project engineer for the joint-venture contractors, Square Construction Co. and Mancine Construction Co.

## More Filtering At Less Cost

On the basis of tests conducted over the last year by long and short haul fleets, transit systems and cab companies, Engineered Sales, Inc., 13701 Eldon Ave., Detroit 35, Mich. claims that users of the improved Universal Micron Oil Filter are realizing filter cost savings of up to 25%.

Comparative measurements show that its filament provides 25% more filter surface than competitive filters of similar size, according to the company. The enlarged filtering surface is achieved simply by pleating the Micron paper more tightly than previously.

Other advantages cited by the company: The Universal filter gives 100% uniform filtration without any channeling of oil; filters out impurities as small as one micron (1/39,000,000 of an inch); resists heat, water and acid, but will not remove additives or detergents from oil; assures constant maximum flow of oil without unloading contaminants when pressure increases.

The Universal Filters, now available for all types of auto, truck and industrial engines, are priced roughly from 57¢ to \$1.25 in quantity orders at the jobber level.

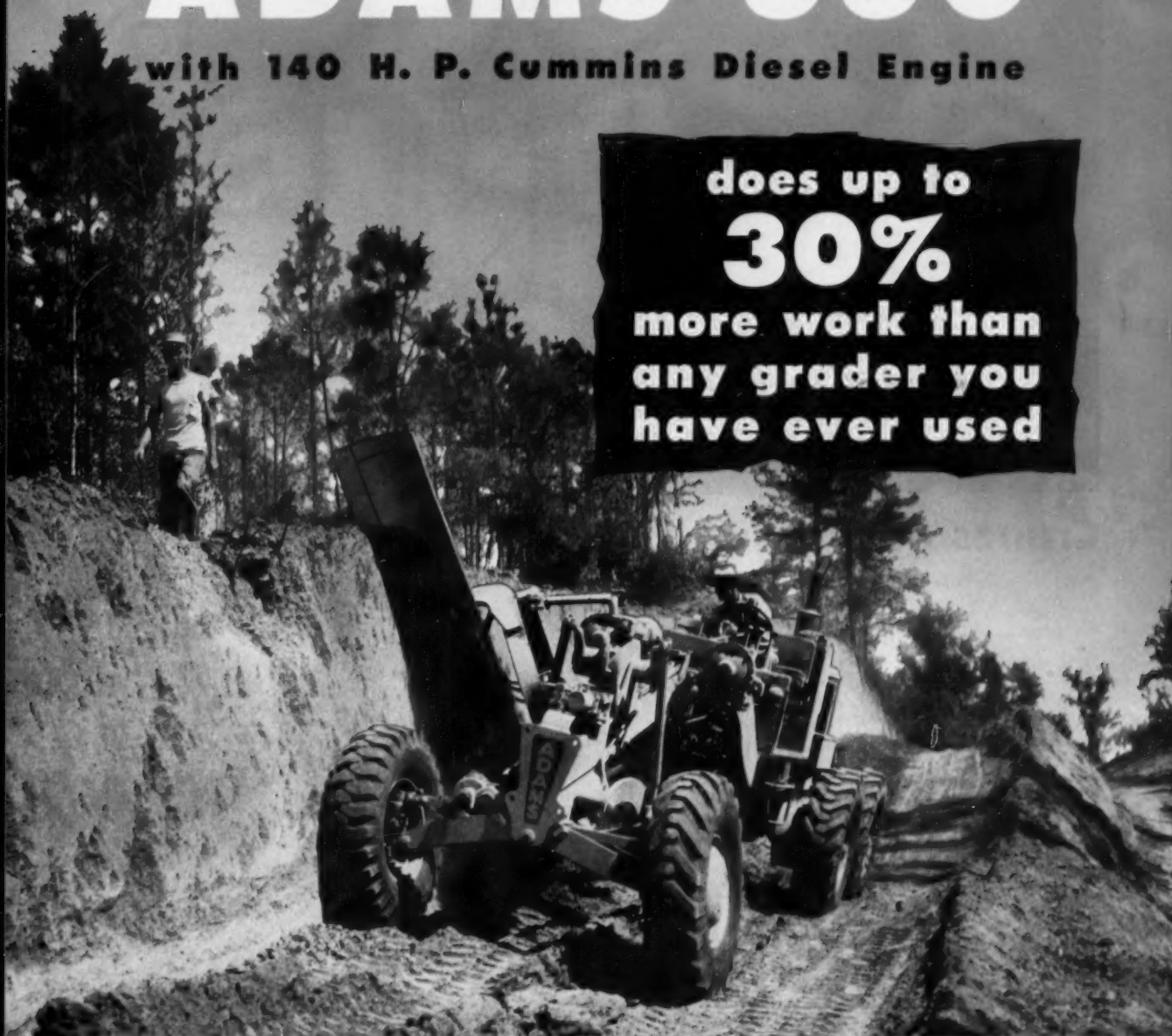
★ ★ ★

ONE REASON FOR HIGH TAXES these days, according to the Chamber of Commerce of the United States, is that Uncle Sam writes an average of one million checks daily.

# ADAMS "660"

with 140 H. P. Cummins Diesel Engine

does up to  
**30%**  
more work than  
any grader you  
have ever used



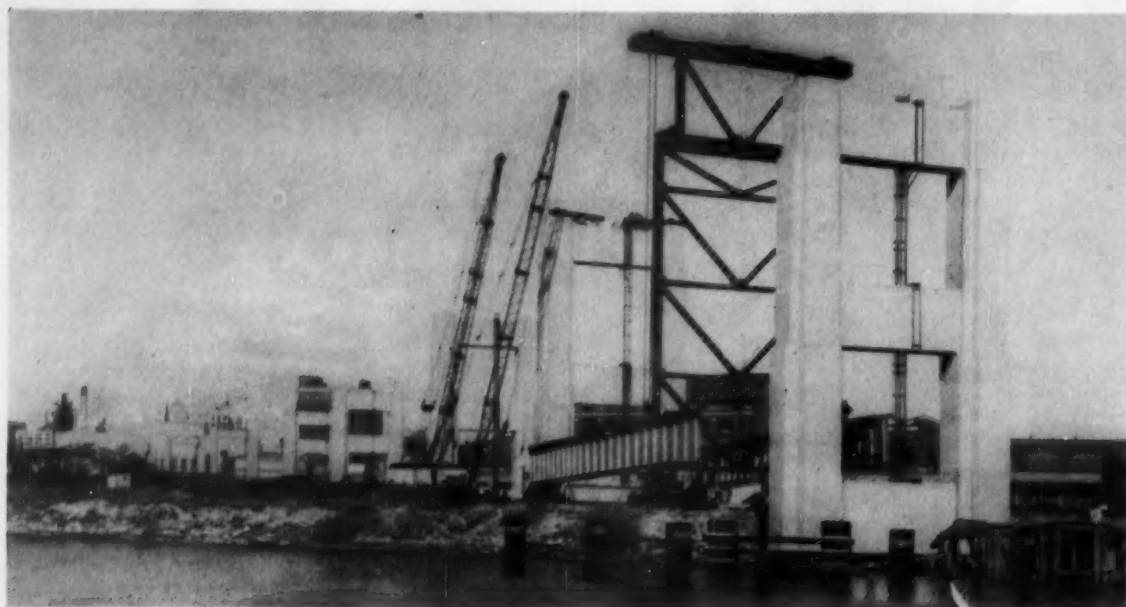
- Does hard jobs easier
- Does most jobs better
- Does any job faster

THAT MEANS MORE MONEY IN THE BANK

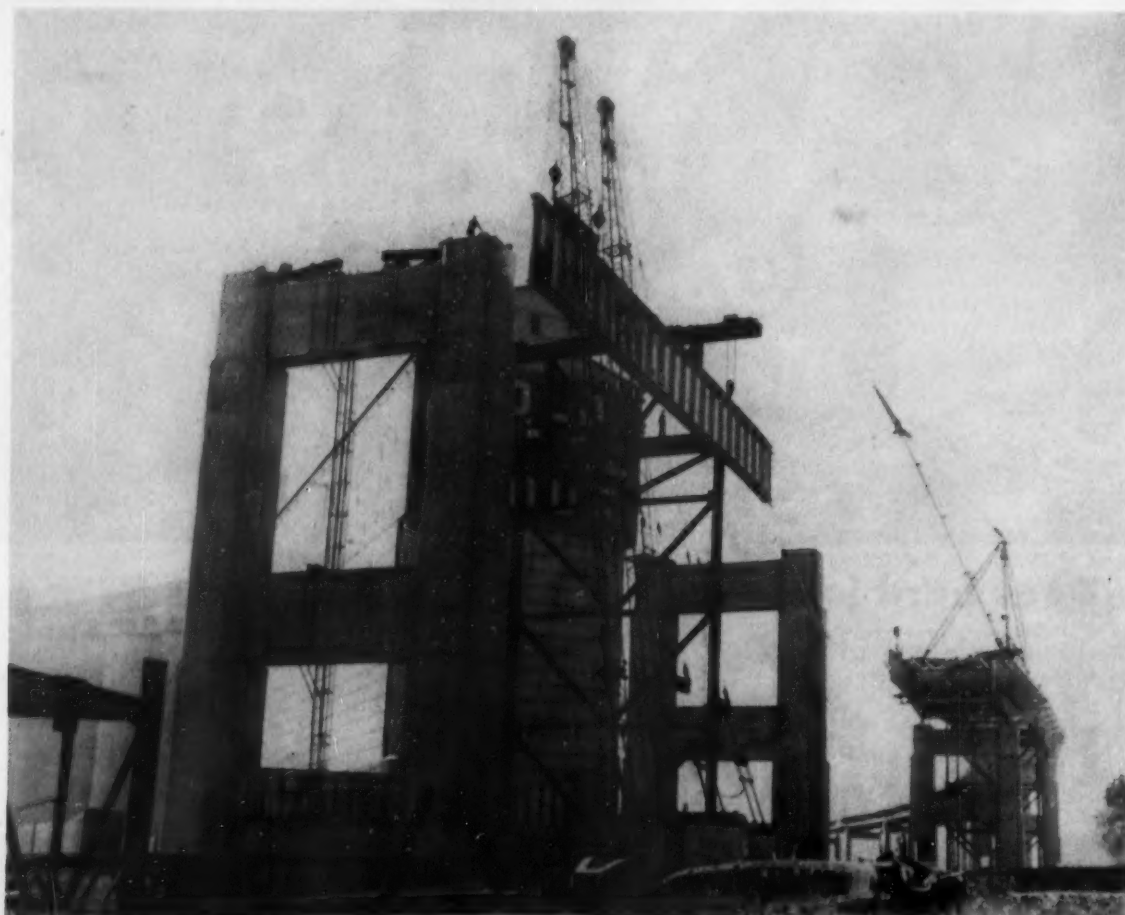
Let your ADAMS dealer show you

*Make your next  
motor grader an*



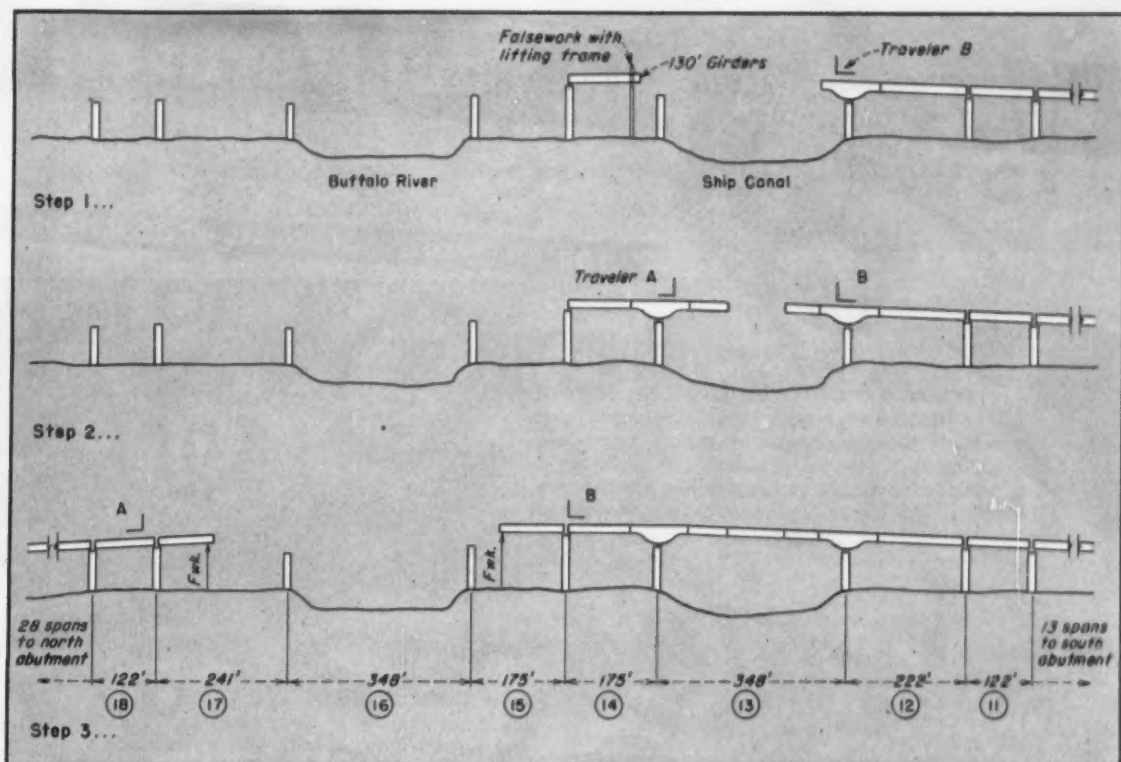


**Cranes and Lifting Frame...**



**...Erect Girders on Island**





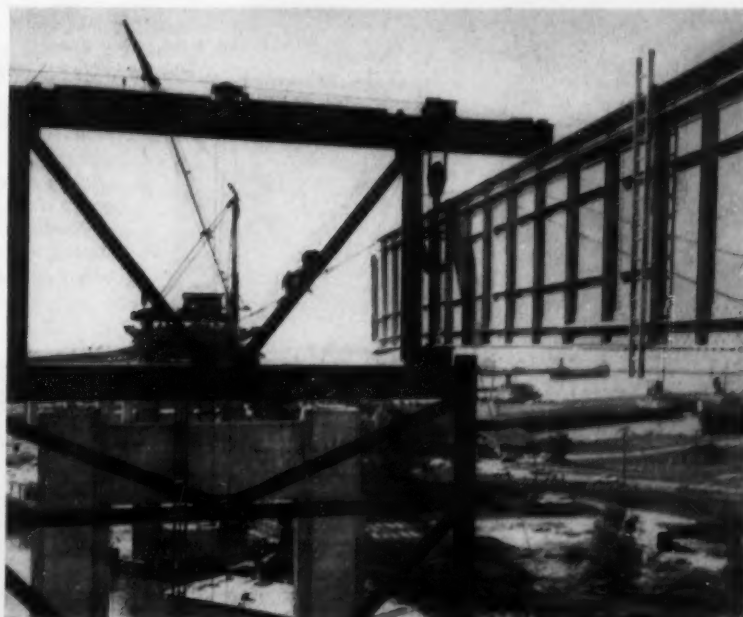
TWO CLOSELY SPACED CROSSINGS on Buffalo's new high level bridge created a tricky erection problem. It was done as follows: **STEP 1** . . . Traveler B erects all steel from south abutment to span 13. As B nears Canal, cranes and lifting frame erect 130-ft girder sections on island. (See photos). Cranes then erect guy derrick on top of girders, and derrick erects traveler A. **STEP 2** . . . A erects steel to span 13, where A and B combine to lift suspended section

of main span over ship Canal. (CM&E p 52 Jan. '55). Traveler B dismantles A, which is carried over to span 32 and reassembled. **STEP 3** . . . A then erects all steel to span 16, as B moves over span 14 to erect span 15. Both travelers erect longer spans with falsework bents Travelers A and B then combine to set the suspended span over the Buffalo River. Unique plan saves weeks on erection time.

TWO CRANES and a falsework lifting frame solved a unique steel-erection problem on Buffalo's new high-level bridge. They hoisted two heavy girders into place on a narrow island that separates the bridge's two main water crossings. A traveler was then assembled on top and moved out to the first of the two main spans. Here, it combined with a second traveler working its way out from the end of the bridge to erect the suspended section.

On most girder bridges having single main spans, travelers are usually started at the ends of the bridge, they erect steel as they work toward each other, and then combine to lift the suspended girder. But the double crossing on the Buffalo bridge demanded a new technique. Girders had to be erected on one of the island spans so that a traveler could be erected on top. This was not simple, however, because each girder was 130 ft long and weighed 92 tons. Ordinary

(Continued on page 142)



OVERHEAD LIFTING FRAME raises one end of 92-ton girder and moves it on to guyed falsework bent. Greased sheave block in cantilevered head beam is pulled by come-alongs and hoist line to skid girder 5 ft. Cranes at opposite end walk girder over pier.



**PUT**



**IN YOUR FUTURE!!**

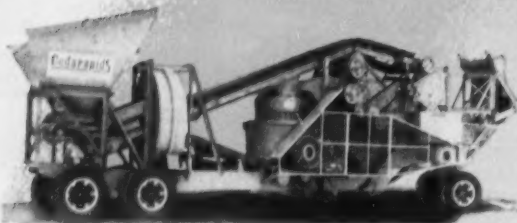
**FOR BIG-PROFIT AGGREGATE PRODUCTION . . .**

**PORTABLE DOUBLE IMPELLER IMPACT BREAKERS**, used for primary reduction, give high tonnage output of cubical aggregate. The high ratio of reduction (40 or 50 to 1), added to simple design and low maintenance, assures big-volume production of low-cost crushed rock and gravel.

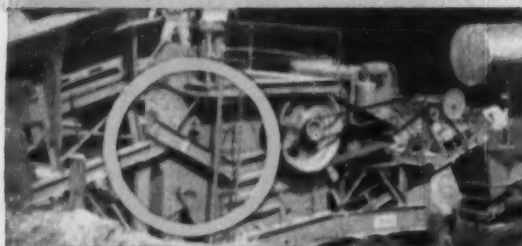


**NEW CONE CRUSHER SECONDARY** combines the great mobility of Cedarapids portable design with the high capacity and low-cost operation of Symons® Cone Crushers. The result is big-volume finished crushing of even the hardest or most abrasive rock or gravel to uniform, finely crushed aggregate.

SYMONS . . . a registered Nordberg Trademark



**COMMANDER PLANT**, now built with a big, new Cedarapids 30"x25" Roll Crusher to step up secondary crushing capacity by 12%, turns out even greater tonnages of finer-sized aggregate than before . . . and at the same cost per ton! The design ratio of the 1036 Jaw Crusher, the new 3025 Roll Crusher, the big 48"x10' Horizontal Vibrating Screen, and the 30" wide Conveyors is the secret of the Commander's high capacity.



**PORTABLE PRIMARY** with Vibrating Grizzly, which by-passes most of the undersize material and fines, increases primary output up to 25%, and greatly decreases jaw crusher wear per ton of production. Vibrating Grizzlies step up production in any pit or quarry, but are particularly effective wherever the percentage of fines is high.

**GET COMPLETE DETAILS FROM YOUR CEDARAPIDS DISTRIBUTOR**

**The Cedarapids Line of Equipment Includes:**

PORTABLE AND STATIONARY CRUSHING, SCREENING AND WASHING PLANTS FOR STONE, GRAVEL AND SAND • BELT CONVEYORS • VIBRATOR AND REVOLVING SCREENS • FEEDERS • HAMMERMILLS • DOUBLE IMPELLER IMPACT BREAKERS • BATCH TYPE AND CONTINUOUS FLOW TYPE BITUMINOUS MIXING PLANTS • DRIERS • DUST COLLECTORS • VIBRATING SOIL COMPACTION UNITS • MOTORIZED HEAD PULLEYS

**Built by Iowa . . . Sold the World Over**

## Assure your share of the coming highway boom!

In the Cedarapids line of aggregate producing and bituminous mixing plants, there's a type and size of equipment to meet every specification requirement, every operating condition for the big job ahead of the Highway Construction Industry.

With Cedarapids in your future, you can combine high production with low operating costs for out-sized profits on your share of future contracts!

### FOR EVERY BITUMINOUS MIXING JOB



**MODEL G60 6000-LB. PLANT** is the answer to meeting today's big market demands for asphaltic concrete. The Model G60 produces 3 or more tons at a batch . . . with fully automatic controls, it turns out 180 tons, or more, per hour! Built-in running gear on each sectionalized unit makes transportation easy. Simple, self-contained erection device assures quick set-up.

**MODEL G40 4000-LB. PLANT** is a new Cedarapids plant designed with every "plus" detail of the bigger G60. Write for a full description of every money-making feature of both sizes.



**NEW MODEL H15**, a batch-type plant designed for medium sized bituminous paving jobs with capacities ranging from 35 to 60 tons per hour, depending on job specification requirements. This stack-up, tower-type plant is simple to erect, as each section is a self-contained unit.

**MODEL CM "COMMERCIAL" MIXER** is a money-maker that can't be beat for profitable commercial jobs such as surfacing city streets, driveways, parking lots, playgrounds, tennis courts, etc. This continuous-flow type plant can be used alone to produce cold mix, or with a Cedarapids Drier and Gradation Control Unit for hot mix or high type asphaltic concrete. For bigger jobs, the Cedarapids Master Plant is available.



**IOWA**  
**MANUFACTURING COMPANY**  
Cedar Rapids, Iowa, U.S.A.

IOWA MANUFACTURING COMPANY, Cedar Rapids, Iowa, U. S. A.

Gentlemen: My next job is \_\_\_\_\_

☐ Please send details of the Cedarapids equipment you recommend.

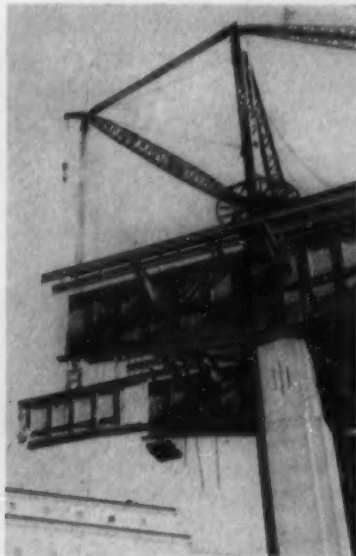
Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



DERRICK-TRAVELER sets east girder section over Buffalo Ship Canal. Note pin for holding suspended span. (CM&E p 52, Jan. '55)

narily it would have taken at least four large cranes to do the job, and that would have been uneconomical for only one operation.

Bethlehem Steel Company engineers had a better solution. They erected a guyed falsework bent on mud sills and mounted a lifting frame on top, capable of hoisting a 60-ton load. Operated by a three-drum hoist, the lifting frame picked up about two-thirds of the girder's weight as two medium-sized cranes combined to lift about a third. When the girder was raised 114 ft to its full height, the cranes carefully walked one end of the girder in over the pier, as workmen skidded the other end over the falsework. The top header of the lifting frame was cantilevered beyond the width of the bent to permit the girder to ride clear, when hoisted. When the girder was raised to its full height, come-a-longs skidded the greased sheave block about 5 ft, moving the girder into position. The falsework without the lifting frame was used in other large spans to support temporarily girders lifted by a traveler.

The remainder of the erection procedure was carried out as shown in the sketch on page 139.

The steelwork is being fabricated and erected by Bethlehem's Pittsburgh Erection District under G. B. Shaw, manager of erection. E. E. Lewis and A. R. Brown are the field engineers and G. C. Kinneman is the superintendent.

## Why Construction Firms Fail

MEETING in New Orleans last month at their 36th annual convention, members of the Associated General Contractors of America learned—if they didn't already know—what causes most construction company failures. According to speaker J. Wilson Newman, president of Dun & Bradstreet Inc., it's just poor business management.

Stressing the importance of sound management, Newman cited the fact that more than half of the failures in the construction industry in 1954 (and they were the highest ever recorded) occurred among concerns in business five years or less. About half of the firms that failed were those where the head of the business was "long on technical knowledge in his specialty, but short on management experience." These figures suggest, he said, that knowing how to build is not alone enough for success in the construction industry. An essential ingredient is management know-how.

Newman pointed out the necessity for accurate cost control and record keeping in order to insure financially sound bidding and a successful job. When the individual builder starts working on a particular contract, he continued: "The cost computation and projec-

tion becomes as crucial to the financial health of the contractor and the project as the engineering technique is to the structural health of the project. The maintenance of proper cost and accounting procedures is imperative. There is a direct correlation between being realistic about costs and being a successful operator. Any business enterprise operating without proper cost and accounting procedures is in as much danger as a motorist driving without proper lights. And, like the motorist, the danger is not restricted to the driver, but is shared by those in the immediate vicinity."

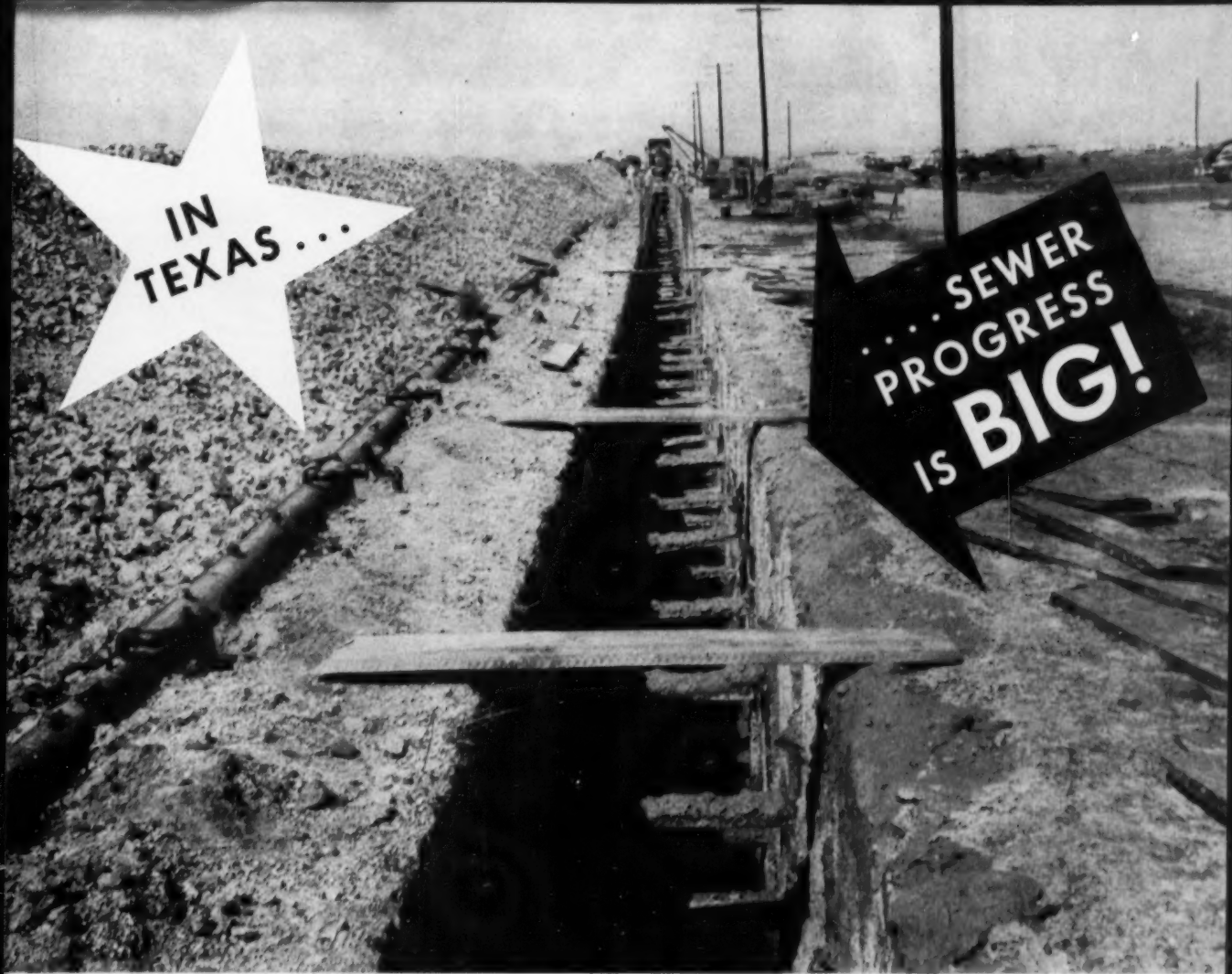
### New Officers

The convention installed George C. Koss, (Koss Construction Co, Des Moines) as president for 1955, and Frank J. Rooney (Frank J. Rooney Inc., Miami) as vice-president. William Muirhead (Wm. Muirhead Construction Co., Durham, N. C.) was re-elected secretary-treasurer. Newly elected chairmen of AGC's three divisions are—Highway: J. L. Ewell (Ewell Construction Co., Lakeland, Fla.) Building: James W. Cawdrey (Cawdrey & Vemo, Seattle) Heavy & Railroad: J. A. Henderson (United Construction Co., Winona, Minn.).



HAPPY GROUP OF AGC BRASS includes H. E. Foreman, managing director; Frank J. Rooney, new vice president; George C. Koss, new president; and John MacLeod, outgoing president.





IN  
TEXAS . . .

...SEWER  
PROGRESS  
IS BIG!

13th Ave. North and Westview Sanitary Sewer, Texas City, Texas.

Pumping Contractors: American Dewatering Corp., New York, Houston, Texas

350' per day—more than twice as much as anticipated! That's the record set by Mainland Const. Co. of Texas City on their sanitary sewer there. To make this progress possible, a MORETRENCH WELLPOINT SYSTEM pre-

drained the trench well ahead of the digging crew. Here's where quick and skillful installation of the wellpoint equipment was of vital importance to the success of the job. Rapid lowering of ground water followed.

Progress and profit on wet jobs start with a Moretrench Wellpoint System. For accurate information on pumping, call our nearest branch.

Write for catalogue.

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CORPORATION**

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With Kwik-Mix R-15  
Moto-Bug® you get

## 3 TOOLS IN ONE

**1** **15 cu. ft. hopper body** — Big-capacity R-15 Moto-Bug hauls concrete, plaster, mortar, brick, tile, and any other construction materials or supplies you shovel, pile or stack into the gravity-dump hopper. It carries up to 2000 pounds or 15 cu. ft. of bulk materials each load — takes a full batch of concrete from an 11-S mixer. Gravity dumping is instantaneous, or can be snub-line controlled.



**2** **2000-pound platform** — Change from hopper body to platform, and you have a heavy-duty, 1-ton capacity truck for hauling concrete blocks, stone slabs, sacked cement and other bulky materials. Moto-Bug platform has a load area of 34 x 54 inches, and is equipped with stake pockets for sideboards. Platform tilts for unloading—has same gravity-dump principle as hopper body.



**3** **7-foot fork lift** attachment lets you use the R-15 Moto-Bug for lifting, loading and unloading. It's readily interchangeable with hopper or platform — lifts 1500 pounds to 7-foot height. Hydraulic power raises and lowers load. Mast can be tilted back 10° when carrying load — or 2° forward for pick-up or releasing load. Standard forks are 30 in. long — adjustable 6 to 32 in. wide.



mail to: KWIK-MIX COMPANY, 3823 W. Samuels, Milwaukee 18, Wis.  
Send us literature on: ☐ R-15 Moto-Bug ☐ S-10 Moto-Bug

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

STREET \_\_\_\_\_

CITY, STATE \_\_\_\_\_

CKW535



**KWIK-MIX COMPANY**

MILWAUKEE 16, WIS.

(Kochring Subsidiary)

Also: CONCRETE • BITUMINOUS • PLASTER-MORTAR MIXERS



**R-15 Moto-Bug** travels 6 m.p.h. forward and reverse, has automotive-type brakes. Clutch lever and brake pedal are within easy reach of seated operator. There's 24-to-1 gear reduction ratio on steering wheel. Turning radius is only 73 inches — overall width, 35 inches. It is powered by 8.3 h.p. gas engine (electric starter optional). There's a choice of pneumatic tires or solid-rubber, soft-core tires. Dual drive tires are optional, give extra traction, flotation, stability for work on or off pavement.

**3-tool usefulness is available in 2 sizes of Moto-Bugs**



**S-10 Moto-Bug** — For smaller jobs, Kwik-Mix also brings you 3-tool versatility in a 6 h.p. Moto-Bug. This S-10 model has 10 cu. ft. capacity as a power wheelbarrow — 1500-pound load capacity as flatbed truck — and 1000-pound (6-foot) fork lift attachment, all interchangeable. Operator rides on rear step — has safe, automatic "deadman" brake control. A small investment in Moto-Bug can earn big savings in time and labor on your work. Check on both sizes — see your Kwik-Mix distributor or write us.

## 310 Trenchliner® digs 17 feet deep

With 45 digging feeds, this big-capacity 310 Trenchliner produces from 8" to 15½" of clean, smooth-walled trench per minute . . . digs 1½ to 4½' wide at 17' depth with single boom, and up to 6' wide at 12' depth with dual booms. 310 has full reverse of all operations for undercutting or making vertical set-ins . . . is equipped with easy-in, easy-out "Tap-In" teeth. Parsons line also includes 5 Trenchliners in smaller sizes.

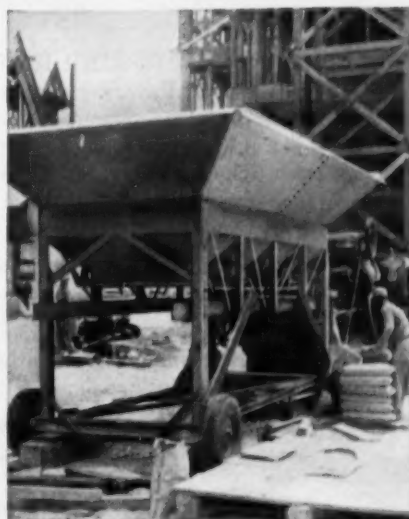
PARSONS • Newton, Iowa  
(Koehring Subsidiary)



## Easy-charging Lo-Bin® Batcher

Lo-Bin Trolley Batcher holds 8, 20 or 30 tons . . . is only 7½' to 9½' high for charging with front-end tractor loader. Lo-Bin has 2, 3 or 4 compartments, up to 4 weigh beams, 22 or 44 cu. ft. weigh hopper . . . or can be arranged for 2 or 3 aggregates and 1 bulk cement compartment. Efficiently serves 28-S, 16-S, 11-S, 6-S mixers. Lo-Bin is quickly dismantled, easily moved by dump truck. Optional: wheels, tires, tow-bar.

C. S. JOHNSON • Champaign, Ill.  
(Koehring Subsidiary)



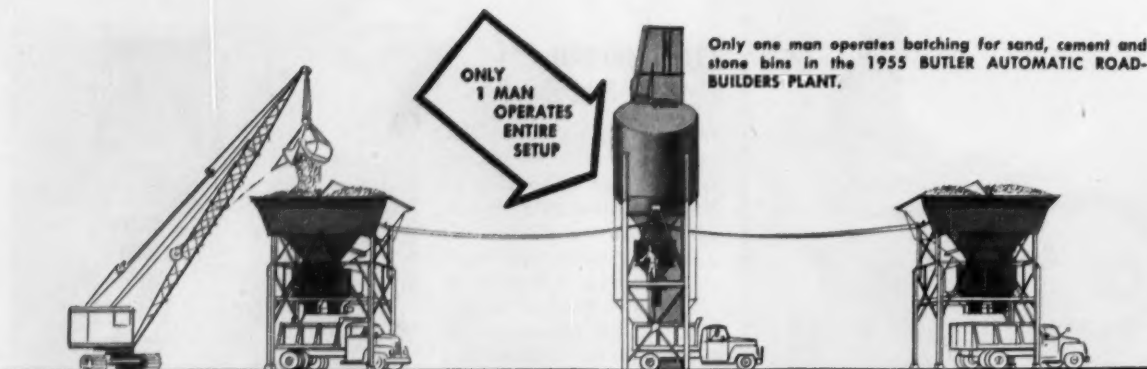
## 86.7 batches per hour with 34-E twinbatch®

Koehring 34-E paver hits a top output of 86.7 batches per hour (60-second mixing time). This reserve work capacity offsets normal production delays . . . assures an average of 50 batches an hour, 8 hours a day, at no increase in batching, hauling or finishing equipment. Every mixing operation is automatic, accurate, fast with split-second Autocycle control. Get more facts on big Koehring 34-E twinbatch. Also check rubber-tired 16-E.

KOEHRING Company  
Milwaukee 16, Wis.

267





**NEVER BEFORE ...**

**such high portability  
such tremendous production  
ONE MAN OPERATION**

**... IN A ROADBUILDER'S PLANT**

The 1955 BUTLER ROADBUILDERS PLANT keeps pace with TWO 34E Pavers. High automation with push-button remote controls provide *one man operation*,\* to load 2 batches simultaneously from the cement, sand and stone bins. Batch discharge to the trucks can be actuated either by the truck driver or the operator. Master controls are located on the operators platform at the cement bin.

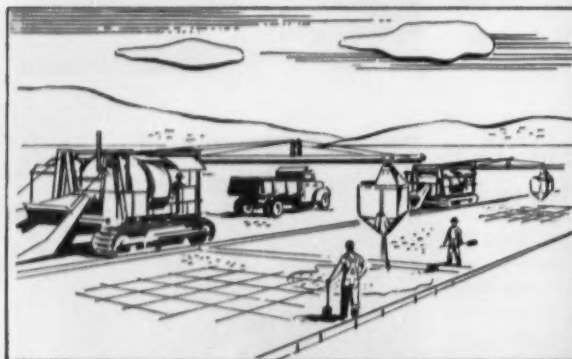
The batch combination of materials is pre-selected and pre-set and continues automatically until specifications require change.

To handle the large volume of materials for such a production flow, aggregate bins are flared to accommodate a high capacity bucket.

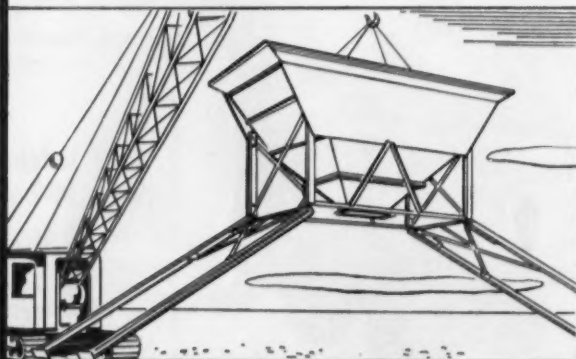
\*Can be operated with 3 men if necessary.

#### **NEVER BEFORE SUCH PORTABILITY!**

For many years Butler Cement Plants have employed hinged, pin-connected columns and bracing, making them the most portable batching plants ever devised. Now Butler brings you the same structural system for your aggregate batching plants. So now the same unique Butler portability is yours in the complete Butler Roadbuilders Plant.



1955 BUTLER Automatic ROADBUILDERS PLANT keeps pace with two 34E dual drum pavers.



Extraordinary portability due to hinge and pin construction is an important cost-cutting feature of the 1955 BUTLER Automatic ROADBUILDERS PLANT.

#### **BUTLER BIN COMPANY**

949 Blackstone Ave.  
Waukesha, Wisconsin

Please send me complete information about the cost-cutting advantages of the 1955 BUTLER Automatic ROADBUILDERS PLANT.

Name .....

Company .....

Street .....

City ..... State .....

Write today for a complete description of this cost-slashing, labor saving, one-man operated BUTLER ROADBUILDERS PLANT. It's the difference between a highly successful season or a regretful "if I only had ...". Use the coupon or send a postcard. But do it — now.

#### **BUTLER BIN COMPANY**

949 BLACKSTONE AVE.  
WAUKESHA, WISCONSIN





**THE JOB:** carve a modern expressway along the side of a steep gorge paralleling the Schuylkill River into Philadelphia. Keep tight control of all blasting. You're shooting right next to homes, factories, bridges, tunnels, power lines, and a railroad.

## Controlled shooting cuts "access road" into city



**TYPICAL SHOT:** a tough side-hill cut. ROCKMASTER® millisecond delay pattern chosen to give good control . . . hold down noise and vibration. At height of blast, note absence of wild flying rock.



ROCKMASTER does it again! Good, controlled heave directs burden away from downhill edge . . . holds good side-hill cut. Breakage excellent . . . permits quick removal of pile.

**THE PICTURES** tell the story! Tough construction job . . . tough shooting . . . every type obstacle! When blasting in an area like this, you need ROCKMASTER®.

In carving out this section of Philadelphia's "Schuylkill Expressway," Talbott Construction Corp., Winchester, Ky., called every shot *right* using ROCKMASTER millisecond delay patterns adapted to the terrain. The contractor got superior breakage, excellent control, real efficiency . . . plus a "good neighbor policy" as a bonus.

ROCKMASTER really paid off.



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If you are not already getting this informative periodical, let us put your name on our mailing list today.

(P. S.—Tell us who else in your organization should get "Better Blasting", too.)



## ATLAS EXPLOSIVES

"Everything for Blasting"

ATLAS POWDER COMPANY,  
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## Uranium Strike!

Back in the hills of the Colorado Plateau, the dependability and low-cost operation of Le Roi Compressors pay off


Uranium is a magic name. And to anyone interested in low-cost, dependable, air compressor operation, the name of Le Roi is magic, too. Just take a look at a few features that keep Le Roi Compressors running after others have "called it quits":

- Suction and discharge valves are interchangeable.
- Cylinders have circumferential fins for better cooling — greater efficiency.

- Radiators and intercoolers have sectional cores.
- Larger air receiver reduces pulsation and cools the air so that tools run better.
- Larger engines for greater reserve power permit slower operating speeds, longer life.

Le Roi Compressors are available in sizes from 85 cfm to 600 cfm. Gas or diesel models and a complete selection of mountings. Bulletins give full details — write for your copy.

C-187

**LE ROI**  *Division of Westinghouse Air Brake Co.*  
Milwaukee 14, Wisconsin



PORTABLE AIR COMPRESSORS



TRACTOR



STATIONARY AIR COMPRESSORS



AIR TOOLS



ENGINES

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nebraska: Omaha — NEW HAMPSHIRE: Manchester — NEW JERSEY: Cranford, Kingston — NEW MEXICO: Albuquerque — NEW YORK: Albany, Binghamton, Buffalo, Long Island City, Newburgh, Rochester, Saugerties, Syracuse, Whitesboro, Woodside (L.I.) — NORTH CAROLINA: Charlotte — OHIO: Cincinnati, Cleveland, Columbus, Dayton, Toledo — OKLAHOMA: Oklahoma City, Tulsa — OREGON: Portland — PENNSYLVANIA: Bethlehem, Harrisburg, Philadelphia, Pittsburgh — RHODE ISLAND: Providence — SOUTH CAROLINA: Columbia — SOUTH DAKOTA: Rapid City, Sioux Falls — TENNESSEE: Chattanooga, Knoxville, Memphis, Nashville — TEXAS: Dallas, El Paso, Houston, Lubbock, San Antonio — UTAH: Salt Lake City — VIRGINIA: Richmond, Roanoke — WASHINGTON: Seattle, Spokane — WEST VIRGINIA: Clarksburg, South Charleston — WISCONSIN: Milwaukee — WYOMING: Casper.



**Dozer pushes sand dikes against surf during night-time low tide as . . .**

## Crane Ripraps Coastal Embankment

**RIPRAPPING** A STRETCH of new highway embankment along the California coast is a constant race against time and tide. McCammon-Wunderlich Co., of Palo Alto, Calif., is building nearly a mile of tightly knit rock structure in the beach area. And most of it has to be done during extreme low tides, whether day or night.

Even when his dozers build up sand dikes against the sea, the contractor has only about 4 hr to work before the surf breaks through. This means that the job has to be completed, as it progresses. Huge stones weighing up to 15 tons are first placed on solid ground and keyed together with chinking stones. A 3-ft blanket of graded

gravel is then spread on top and covered with roadway embankment material. Unless all of these operations are completed before the sea breaks through, wave action cuts out much of the material, moving the rocks out of position and forcing the contractor to repeat most of the work.

*(Continued on page 152)*



**EUCLID BOTTOM-DUMP WAGON** places 3-ft blanket of graded gravel on top of stones, as tide begins to move in. Roadway embankment material is placed on top of gravel. Work can be done only at low tides, allowing the contractor only about 4 hr a day.



**At Kenton, Ohio**—in the world's largest, most modern trailer axle plant—a hydraulic press (right) exerts a 50-ton pressure near the end of every TDA Trailer Axle, bends the tube next to the seams to insure strong welds, no weak spots, and complete absence of flaws.

# WE BEND TRAILER AXLES

...to insure that all welded super-strong!



**Another example of TDA hidden quality—**  
typical of the ends to which we go for greater highway safety  
—proof in advance that TDA Trailer Axles can take it!

**Double trouble!** Yes, TDA Trailer Axles are torture-tested at *both* the Kenton, Ohio plant—and the famous Timken-Detroit indoor proving ground in Detroit!

The Detroit "Torture Chamber" is a multi-thousand-acre proving ground condensed into one room. Here, our engineers can subject stock axles and gearing indoors to any outdoor operat-

ing condition. Put over 50 years' experience gained in building axles for trucks, buses, trailers, farm machinery to work for you.

Result? Far greater highway safety, longer axle life, reduced maintenance, repairs and downtime; lowered operating costs. *No wonder Timken-Detroit Axles are the choice of leading manufacturers and operators.*

**For your own protection and safety specify Genuine TDA Equipment Parts!**

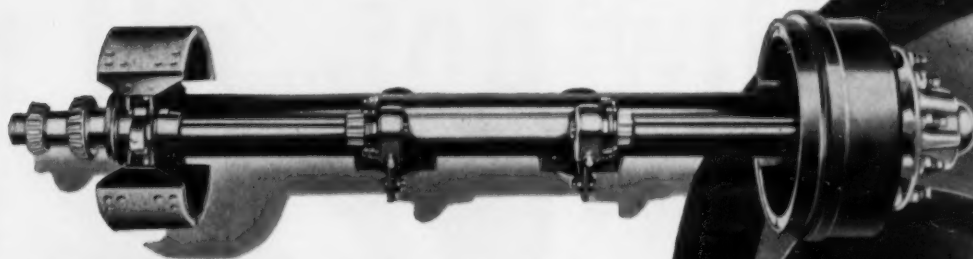
Take no chances with substitute replacement parts. For longer axle life—for greater operating safety—insist upon genuine Timken-Detroit axle and brake parts, identical to your axles' original equipment.

For a dependable factory-type job, to cut labor and adjustment costs... order your replacement parts by TDA number from your trailer manufacturer.

## TDA...the Lightest trailer axle on the market...and the strongest!

Proved far stronger, more rugged and safer in all-out "Torture Chamber" tests, TDA Trailer Axles are also many pounds lighter than any competing axles on the market today. Weight saving is possible through the use of TDA lightweight, pressed steel brake shoes, up to 50% lighter, and stronger, too.

Other hidden quality features that increase TDA life and performance are forged alloy steel spindles, cam roller mountings in Nylon bushings, machined cam head, cleaner cut splines and self-aligning camshaft support brackets. Good reasons leading manufacturers and operators specify TDA.



### Heat and stress relief treatment for greater strength!

Note the greater extent and depth of heat treatment given this TDA Cam and Seamless Tube. Tube is heat-treated for the *full length*. And, the camshaft is *completely* heat-treated; not just the head. An important ingredient of TDA superiority.

A stress relief treatment is given *every* tube to relieve any stresses created during machining and welding.

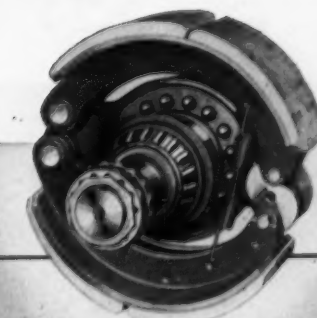
TDA Spindles forged of alloy steel have higher rockwell hardness than any other axle spindle on the market.

# WITH 50-TON PRESSURE seams are



### ONLY TDA BRAKES give all these tested advantages!

- Brake shoes made of steel save up to 40 pounds per axle... give strong braking action with no distortion.
- Patented liner shape—thickest where wear is greatest.
- Liners riveted on—no chance of movement on shoe.
- Liners circle-ground to cover all efficient braking area of shoe.
- Rustproofed anchor pins locked in. Ends of pin sealed against foreign matter.



- First with self-aligning camshaft housings.
- Cam rollers heat-treated to roll smoother, wear longer.
- First with all-Nylon camshaft bushings.
- Compare similar products part for part and prove to yourself that TDA brakes incorporate the finest quality materials, skilled workmanship and advanced design.



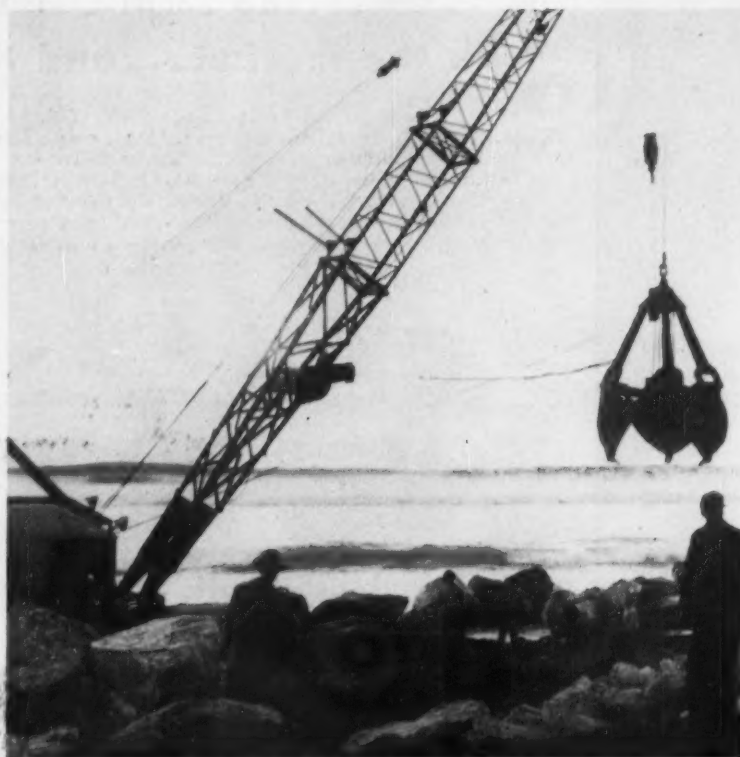
## CRANE RIPRAPS . . . Continued from page 149

After the rock riprap is successfully placed to elevation +3.0, a frontal sand beach starts to build up, and the balance of the construction work can be carried on during moderate tides. And except for extreme tides and storm periods, very little further trouble is encountered. From elevation +12.0 to the roadway elevation averaging +23 ft, a 3-ft blanket of rocks, weighing 500 lb to 2 tons, is placed over the 3-ft thick blanket of graded gravel. This last item of construction completes the riprap operation, and the balance of the contract work will follow normal highway building procedure.

At present, quarry operations are conducted in a limestone deposit on the Guadalupe Rancho, now known as the Broome Ranch, 13 mi south of Oxnard on U. S. Alternate Route 101.

The imported borrow is being excavated from a 500-ft high hill north of the Southern Pacific R.R. at the easterly end of the project. Approximately 800,000 cu yd of material will be stripped from the face of the hill on a 1:1 slope. This is being conveyed under the railroad tracks, under the existing State highway, and through a 10x6-ft P.C.C. box culvert by a 600-ft conveyor system. It is elevated to hoppers and then distributed with Euclid bottom-dumps.

The drainage facilities are a series of reinforced concrete box culverts which extend oceanward through the riprap seawall and extend landward to connect with existing drainage structures under the Southern Pacific R.R. tracks. The outer 45 ft of the ends of the culverts are designed as cantilever to prevent any cracking during the anticipated settling of the riprap. These sections will be cast in



ESCO ORANGE-PEEL BUCKET with rock hooks prepares to place stones weighing up to 15 tons for riprap structure. Chinking stones key unit together.

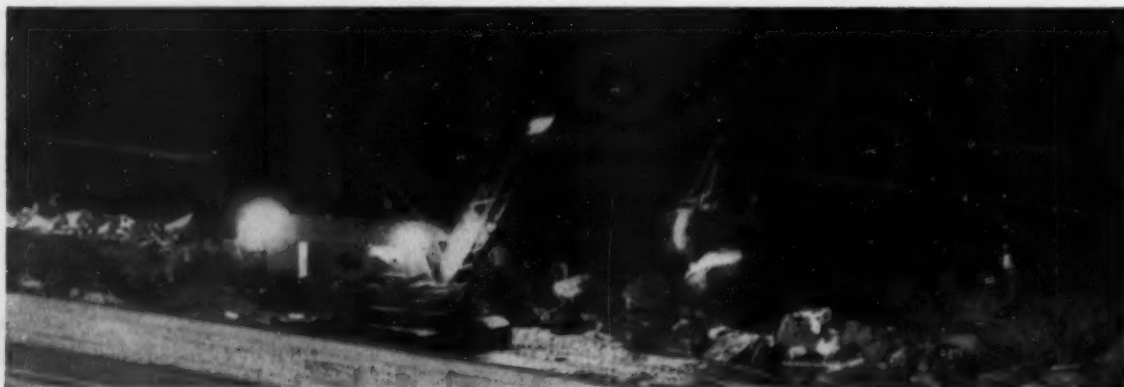
place. Because of the large volume of public traffic through the contract, and in order to keep the contractors' heavy equipment off the traveled way and thus assure added safety by reducing traffic hazards, the remaining portions of the culverts are being precast in 11-ft sections and will be set in place as the roadbed is being constructed.

James Wilson is project manager for McCammon-Wunderlich Co., Ken Omsberg is superintendent, and Robert Nutt is in charge of

riprap construction operations.

The construction work on State highways is an activity of the State of California, Department of Public Works, Division of Highways. Frank B. Durkee is the director of public works, and G. T. McCoy is the state highway engineer.

The State highway work in District VII is under the general supervision of assistant state highway engineer P. O. Harding, and district engineers, W. L. Fahey, and E. T. Telford.



NIGHT LIGHTS SPARKLE in the blackness, as Lima 803 crane places riprap with 70-ft boom and 2-yd bucket. After riprap is placed to

elevation +3, a frontal sand beach builds up, allowing the rest of the work to be carried on during moderate tides.

*Gasoline or Diesel...*

# Keep Your Engines on the Job with

# FRAM



## FRAM OIL FILTERS

FRAM keeps oil and engines cleaner . . . longer. FRAM is engineered for *extra-high* filter efficiency to guard precision parts against engine-killing dirt, sludge and abrasives. FRAM Filters and Cartridges cut engine wear . . . reduce

breakdowns, overhauls and repairs! See your FRAM Dealer today for the best life insurance your engines can have!

**FRAM**  
OIL • AIR • FUEL • WATER  
**FILTERS**

## FOR DIESELS

**FRAM Water Separator & Fuel Filter.** Save your costly fuel injectors with this double-action FRAM Filter.

1. 100% water removal—saves injectors from corrosion, rusting, pitting . . . removes all water before injection!
2. Traps dangerous dirt before it reaches injectors — ends abrasive action!

Give your diesels complete injector protection! Write today for information on a FRAM Water Separator & Fuel Filter for your diesels!

FRAM CORPORATION, Providence 16, R. I., Fram Canada Ltd., Stratford, Ont.

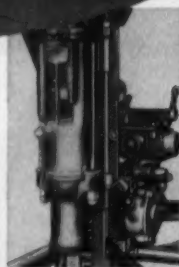
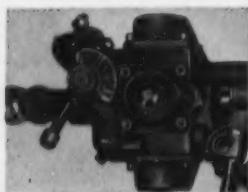
*The Joy Mediumweight Wagon Drill is designed for a 4 in. drifter and a 9 ft. feed travel. Drills easily to 24 ft. or more.*

**INCREASED FOOTAGE  
EASIER OPERATION  
LONGER LIFE**  
from these 4 Joy  
Wagon Drill "Firsts"

*...only JOY  
gives you ALL these  
Features...*



**CADMIUM PLATING**



**"DRILL AND BLOW"**



**HYDRAULIC LIFT**

**POSITIVE-LOCKING BRAKES**



W&O © 1912

*Consult a Joy Engineer*

for STATIONARY AND PORTABLE COMPRESSORS  
ROCK DRILLS • ELECTRICAL CONNECTORS  
ROCK BITS • PORTABLE LIGHTING LINES

**JOY-PIONEERED CADMIUM PLATED DRILL** Only Joy Drills offer this silver-like protection (inside and out) that prevents rust, corrosion, and piston scoring—aids normal lubrication.

**JOY-PIONEERED "DRILL & BLOW" FEATURE** All Joy Wagon Drills blow dust and cuttings from the hole *while* drilling—no need to stop for blowing. Single drill-control lever for speed and convenience.

**JOY-PIONEERED HYDRAULIC LIFT** The drill, feed, and supporting arm are raised to drilling position in seconds. No laborious cranks or worm gears. Opening a valve lowers the frame quickly and smoothly.

**JOY-PIONEERED WAGON BRAKES** Only Joy Wagon Drills have positive-locking brakes which do away with chocks and rocks, reduce setup time.

For complete details on Joy Wagon Drills, write for Bulletins GG-2C and GG-2D, to **Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.** In Canada: **Joy Manufacturing Company (Canada) Limited, Galt, Ontario.**

**JOY**

CONSTRUCTION EQUIPMENT MANUFACTURERS  
FOR OVER HALF A CENTURY



In one 10-hour day, Yonkers' 10 C Tournapulls moved 861 loads (14 pay yards each, on a 2,000' one-way haul over a soft road that included a 25% adverse grade on return. That's total of 12,054 cubic yards! On average days, same haul distance, same fleet moved about 11,000 yards. Says Foreman Fred Vigue, "Tournapulls give this continually high production because of their speed, the big loads they carry, and their exceptional maneuverability."

# RAIN 97 days out of 154

*fails to stop rubber-tired earthmovers on Maine Turnpike*

**T**O help move 3,000,000 yards of clay, rock, sand and gravel for the Maine Turnpike Extension near Lewiston, Yonkers Contracting Company, Yonkers, New York, brought in a rubber-tired fleet of 10 electric-control C Tournapulls and 2 Tournatractors.

Grading their 10.83-mile section of highway involved cuts up to 55 feet deep; fills up to 38 feet. Over 1,460,000 cubic yards of clay (including some extremely tough blue clay) had to be excavated. 1,440,000 yards of selected sand and gravel borrow had to be brought in. 100,000 yards of rock had to be blasted and moved away.

Under normal conditions, the \$2,120,909 contract would have been a routine, though large, dirtmoving job. But conditions were far from normal! Right from the start, work was hampered by heavy rains.

## 97 days of rain, 2 hurricanes

For more than 70 years, rainfall here from May to September has averaged 16 inches. But not this year! During these five months, Maine received over 30 inches of rain. Out of 154 scheduled working days, it rained on 97 days. Rarely did the dirt have a chance to dry out.

The crowning misfortunes came when hurricanes "Carol" and

"Edna" blew right through the job within 10 days of each other. "Carol" alone yielded 3 inches of rain in less than 2 hours.

## What men on the job say:

In spite of the constant rains, Yonkers, working 80 to 120 hours a week, moved about 45% of the total yardage during the first five months. Everyone on the job was very happy with the way Tournapulls worked in slippery footing. One company official said, "Tournapulls have done work no other equipment could have done." Exclusive power-proportioning differential kept "C's" from getting stuck by automatically transferring drive power from one wheel to another to take advantage of the best footing.

## Some typical production figures

When job was visited, 5 of the 10 sideboarded Tournapulls were hauling three miles one-way to spread sand and gravel backfill around a culvert excavation. Despite slowdown to blade haul-route on return trip, each Tournapull completed a 6-mile cycle every 25 minutes. Loads averaged 14 pay yards.

At another location, 5 other "C's" were hauling 14 pay yard loads of sticky blue clay 1300' to 1500' down 6% grade to spread on the roadbed. Job records covering this operation

show each Tournapull averaged a 3000' cycle every 7½ minutes. Load time averaged 45 seconds; dump time, 20 seconds; haul and return speed averaged 8 mph.

## Ask for more information

If your next job involves mud or other uncertain footing, better check Tournapulls. We will be glad to show you owner-verified production figures on work similar to yours. Or, if you would prefer to see Tournapulls in action, call to arrange a demonstration.



Tournatractor speed, power and ability to work over soft fill were money-saving advantages in towing of this 50-ton compactor. In its spare time, rubber-tired unit travels all over the job at speeds to 19 mph to handle small clean-up assignments. Yonkers' second Tournatractor pushes the loader . . . cleans the pit . . . pushes stuck trucks . . . builds and maintains haul roads.

Tournapull—Trademark Reg. U.S. Pat. Off. Tournatractor—Trademark PT-748-H-b

**LeTourneau-Westinghouse  
Company**  
PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company



This 63-mile extension to the present Maine Turnpike will connect Maine's largest city, Portland, with its capital, Augusta. Contracts

for grading, bridges, and steel, already awarded by the Turnpike Authority, total more than \$32,000,000. Nine separate grading contracts specify moving of 18,145,000 yards of dirt. The entire expressway will be paved with a 3-inch bituminous concrete surface on a 4-inch macadam base. This will be laid on a 12-inch gravel base which will, in turn, be set on 20 inches of selected sub-base.





*Now*

## ...4 tons more capacity at no extra cost

### Check these improvements:

#### 4 tons more capacity

Payload of the C Tournapull Rear-Dump has been raised from 18 to 22 tons! Increase was made possible by redesigning the Rear-Dump body to make it lower and wider. Because of this greater width, the "C" loads faster and easier than ever before. At the same time, we have reinforced the bowl to further increase our safety margins. These improvements, plus all the others described here, are available on the new "C" at no extra cost to you.

#### Better gradability, stability

New body design shifts weight forward . . . improves gradability over the previous C Rear-Dump. With this improvement, "C's" grade-climbing ability now compares favorably with any make hauler on any practical haul road. Wheelbase has been increased 6 in., gauge widened to 9 ft., and ground clearance lowered to 22 in. to give you even greater stability . . . improved performance on grades. Overall length in haul position, however, is only 30 ft.

#### 13 to 20% less deadweight

Comparable rear-dumps carry from 2½ to 4 tons of excess iron on their backs. For these extra tons of iron you pay from \$850 to \$5600 more than for a "C". You haul this extra dead-weight both ways on every trip your hauler makes, but add nothing to your earnings. For the life of the machine it costs you bigger fuel bills, higher tire costs due to over-loading, plus greater repair expense because of extra weight and shock on running gear.





## *"C" Rear-Dump now 22 tons*

### **12% greater horsepower**

To power your improved "C" Rear-Dump, you now have a 6-cylinder GM 6-71 diesel with brake horsepower rating of 208 hp at 2000 rpm. With this improved engine, you get quick pickup in starting and gear changes . . . better response at high speeds . . . better grade-climbing ability . . . all adding up to overall faster cycles. 200 hp Buda or Cummins diesels are also available. And, you have choice of sliding-gear or constant-mesh transmissions.



**In addition to many improvements in structure and machinery throughout, you get all these job-proved basic features which made the previous C Rear-Dump a successful production unit:**

**Hauls anywhere** — With big rubber tires, Rear-Dump safely travels narrow haul roads, paved highways, city streets . . . hauls cross-country over roughest terrain, through mud, and soft fills.

**Reduces maintenance** — Because Rear-Dump has no hydraulics, no jack lines, no long drive-shaft, no frame, sub-frame, springs or tie rods, most common troubles of conventional rear-dump haulers are eliminated.

**Dumps fast, clean** — A touch of a switch activates hoist motor. Body lifts quickly, swings behind rear wheels to dump clean over bank. Streamlined bowl sheds material readily.

**Cuts weather delays** — Power transfer differential automatically applies power to drive wheel on firmest footing . . . pulls unit through mud, sand, and soft materials which stop ordinary haulers. It's a Tournapull exclusive.

**Works fast in tight quarters** — 90° turns within a radius of half of unit's length, plus power steer, quickly position "big-target" body under dipper. No switching back and forth, no turntables.

**Eliminates manual work** — Finger-tip electric controls on instrument panel activate electric motors at point of action. Heavy manual work fighting steering and control levers is eliminated.

**Resists body shock, damage** — Three-layer, all-steel, grid-type bowl with tool-steel floor resists

loading shocks. Big, wide bowl opening is an easy target for any loading unit.

**Improves safety** — Multi-disc air brakes have more braking surface on one wheel than most haulers have on 4. Low center of gravity, good visibility, front-wheel drive, easy control also boost safety.

**Delivers full power** — Torque converter (optional) automatically balances load and torque so you get full hp always. Lugging is reduced; shocks between engine and transmission virtually eliminated.

**Reduces fatigue** — Big low-pressure tires and air-foam rubber cushion seat smooth out ride for operator. Push-buttons control every action. Fatigue factors are greatly reduced.

**Insures future earnings** — Behind Tournapull prime-mover, you can interchange scraper, bottom-dump, other trailing units. With them, you always keep these units profitably busy on any type of future operation.

Check for yourself. Your LeTourneau-Westinghouse Distributor will supply you with names of Tournapull Rear-Dump owners in your area. Visit the jobs . . . talk to the operators . . . learn for yourself that improved C Tournapull Rear-Dump is the answer to your hauling problem.

There is a size to fit your needs. Besides the 22-ton "C", LeTourneau-Westinghouse offers similar 9, 35, and 50-ton models.

Tournapull—Trademark Reg. U.S. Pat. Off. 8-765-G

**LeTourneau-Westinghouse Company**

PEORIA, ILLINOIS

*A Subsidiary of Westinghouse Air Brake Company*



# CM Lodestar®

ENTIRELY NEW  
differently NEW



FLEXIBLE  
LINK CHAIN

CAPACITIES: from  
1/4 to 1 ton. Single and  
3 phase. 1/4 ton model  
weighs only 31  
pounds.

**\$149.50**  
and up

Built to serve you for its normal  
life without costly maintenance

- ... the first truly "heavy duty" version of the small electric hoist.
- ... complete flexibility — interchangeable suspension — quick voltage change.

## FEATURING:

- Push Button Control
- Self-Adjusting Heavy Duty Brake
- Sealed-in Lifetime Lubrication
- Overload Protection
- Fully Enclosed Components
- Lowest Headroom
- "CM-Alloy" Flexible Link Chain

WRITE US  
or call your CM distributor  
for literature, prices and quick  
delivery from stock.



**CHISHOLM-MOORE HOIST DIVISION**  
Columbus-McKinnon Chain Corporation

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Regional Offices: New York • Chicago • Cleveland  
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McKinnon Columbus Chain Ltd., St. Catharines, Ont.



CATERPILLAR NO. 12 MOTOR GRADER spreading part of the windrow of pit-run shale and sandstone on road surface for crushing by Grid Roller. Later it will shape road grade.



HYSTER GRID ROLLER, with 18,000 lb of concrete ballast, towed by Caterpillar D8 tractor, reduces pit-run material to 2 1/2-in. oversize in five passes.

## Grid Roller Crushes Surfacing Material in Place

ONE WAY OF SOLVING your aggregate hauling problem is to manufacture needed aggregates in place. That's exactly what Stillwater County, Mont., did.

Resurfacing 550 mi of county road with native gravel would have been a costly operation, as the gravel had to come from pits as far as 60 mi from the sections to be surfaced. Estimates indicated the cost would be approximately \$2,500 per mi of road.

The county decided to use instead the sandstone and shale which exists in abundance in the area. To make use of this pit-run

material an inexpensive method of crushing it in place was required, and a Hyster Grid Roller filled the bill.

A shale and sandstone deposit was located 1 mi from the first section to be resurfaced. This material was ripped up and hauled to the road where it was deposited on the shoulder 2,000 cu yd per mi. Part of the windrow was then spread on the road by a Caterpillar No. 12 motor grader.

Pulled by a Caterpillar D6 tractor, the Grid Roller, equipped with 18,000 lb of concrete ballast, made

(Continued on page 162)





**This man will handle his materials...Faster...Easier**  
*with power equipment that can be used throughout the job!*

Contractors use PRIME-MOVER when there is concrete to place — brick to haul — materials to move. PRIME-MOVER is an everyday tool . . . a tool that helps the contractor to bid lower — build faster — make money. PRIME-MOVER is sold and serviced by reliable distributors throughout the U. S. and Canada. The coupon is for your convenience. Use it now.

**PRIME-MOVER**

THE PRIME-MOVER CO., MUSCATINE, IOWA



**THE PRIME-MOVER CO., Muscatine, Iowa**

Gentlemen: Please send me On-the-Job Reports of Prime-Mover in construction work. Also specification data.

YOUR NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

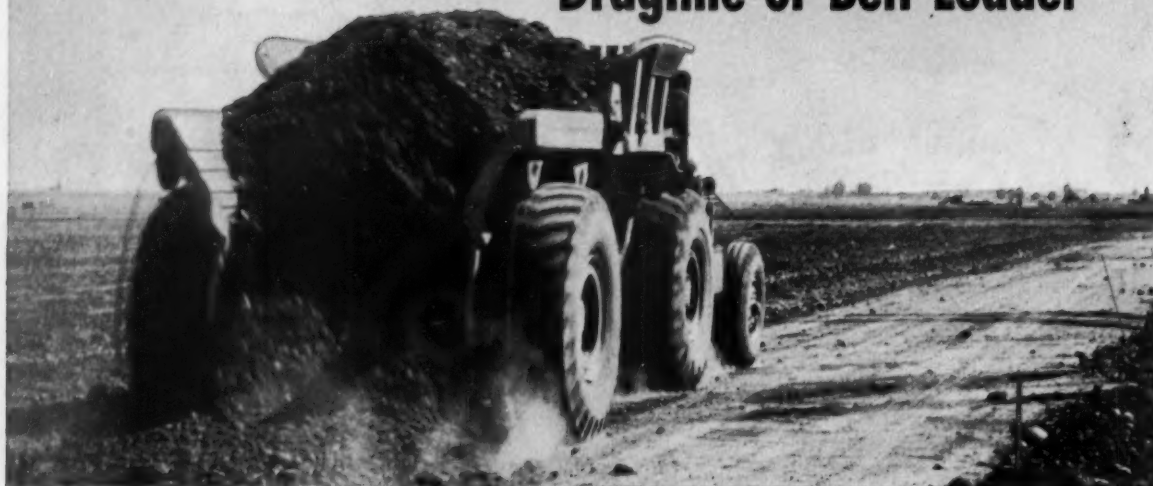
CITY \_\_\_\_\_

STATE \_\_\_\_\_



# **C & D Movall**

## **Dumps and Spreads any Material You Can Load with Shovel, Dragline or Belt Loader**



C & D MOVALL saves on grading by spreading fill approximately 10" deep on long runway.

## **Has Positive Ejection, Controlled Discharge; Dumps Sticky Materials Clean, Spreads Fill Like a Scraper**

MOVALLS, teamed with Caterpillar DW20 or DW21 tractors, handle 31-ton, 25 cu. yd. (heaped) loads of any material that can be loaded with shovel, dragline or belt-type loader. They can spread "on the go" in even lifts of any desired depth, dump at controlled rate into hoppers, or eject full loads in 12-14 seconds over the edge of a fill. Power ejection with a 140,000-lb. push scrapes

out sticky or frozen materials whistle-clean, boosts out heavy rock in a hurry. No other haul unit available today has such a wide work range.

### **Easily Interchanged With Scrapers**

**If you own Cat DW20 or DW21 tractors with scrapers, you can equip for any top loading job in any material just by adding MOVALLS. Exclusive**

C & D interchangeable yoke makes it easy to change from scrapers to MOVALLS or vice versa, or to switch prime movers. You get the proved performance, economy and reliability of your Cat prime mover, plus the unmatched work range of the MOVALL—at far lower cost than a self-powered haul unit.

### **Performance-proved**

MOVALL's rugged construction and versatility have been amply proved loading heavy rock under 2½ to 6-yd. shovels, handling mud and sticky clay on highway and dam jobs, spreading sub-base and surfacing materials on airport and road work, and scores of other jobs.

Why limit your earning power with a one-purpose haul unit? Investigate—see your Caterpillar distributor or wire us now about a MOVALL demonstration on your job. C & D MANUFACTURING COMPANY, Perkins (suburb of Sacramento) California; phone Hillcrest 5-8592.



MOVALL is only end-dumping haul unit that keeps center of gravity low while dumping—uses power, not just gravity, to get the load out.

3

# Announcing The New **UNIT** Model 510 *Challenger*



## DESIGNED with a BACKGROUND of $\frac{3}{8}$ YARD EXPERIENCE

Evidence of highest quality engineering and construction includes alloy steels and forgings • anti-friction bearings • modern transmission design with involute splines to add strength and reduce wear • straight-in-line engine mounting with torque converter • trunnion supported tapered drums to eliminate bending stress on drive shafts • easily accessible hydraulic clutches • minimum number of main machinery gears enclosed in one-piece cast gear case • force feed lubrication • self-aligning replaceable hook shoes distribute applied pressure over maximum area • interchangeability of parts simplifies maintenance, cuts costs. All these UNIT advantages mean more profitable operations for you.

## Why it's **BEST** to INVEST in modern **UNIT** models

Because each feature has been proven to contribute substantially to the Life, Performance and Efficiency which have made present and previous UNIT products readily acceptable.



**UNIT CRANE & SHOVEL CORP.**  
5305 W. Burnham St. • Milwaukee 14, Wis., U.S.A.

*Send for Bulletin Now... Use Coupon!*

*Geared to boost your earnings!*



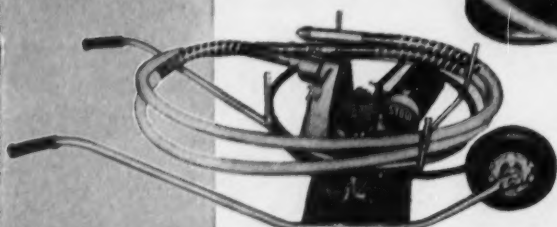
**UNIT CRANE & SHOVEL CORP.**  
Milwaukee 14, Wisconsin

Please send me your new Bulletin on  
the **UNIT CHALLENGER** Model 510.

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_

# New performance features built into **STOW** **CONCRETE VIBRATORS**

MODEL AG



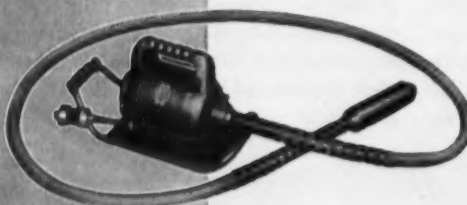
SHOWN: MODEL BGW. This is the standard STOW model BG vibrator, mounted on wheelbarrow for easy maneuverability. Model BG & BGW feature 2 HP 4 cycle, air-cooled engine; ball-bearing eccentric belt tensioner.

Contractors like STOW vibrators because the high operating speeds of this new STOW vibrator line make possible the use of heavy duty, light weight flexible shafting, and lighter, more efficient vibrator heads. And STOW design provides convenient speed control so that attachments for rubbing, grinding, cleaning may be used directly on the vibrator shafts, making it unnecessary to purchase extra shafts for this purpose.

*The STOW line is complete . . . provides the right vibrator for every job. Complete accessories available. Be sure you see your STOW distributor about the STOW line!*



MODEL J—The lowest priced vibrator in the STOW line. Slower speed means longer, trouble-free operation. Model J features 3600 (max.) VPM, 2 HP 4 cycle air-cooled engine, and direct drive.



MODEL BU—Features 2 HP at 9000 VPM, operates on 115 volts AC or DC with splash-proof, high speed ball-bearing motor.

See how STOW can save money  
for you! Send for Free  
Catalog 552



# STOW

MANUFACTURING CO.

31 Shear Street, Binghamton, N. Y.

## GRID ROLLER . . .

Continued from page 158

five passes over the material reducing it to 2½ in. oversize. The crushed material was then bladed to the opposite shoulder, and the crushing operation repeated until the entire windrow was reduced. This material was next spread over the road surface and finally compacted to a finished surface by the Grid Roller.

This method of resurfacing cost the county 38c per cu yd, or \$760 per mi. This was the complete cost, including ripping up the material and hauling, crushing and compacting the finished surface. To resurface a section 8/10 mi long and 18 ft wide, required 8 hr.

## New Wire Rope Is 15% Stronger

A NEW HIGH STRENGTH wire rope is announced by American Chain & Cable Co., Wilkes-Barre, Pa. An average tensile strength of 300,000 psi has been achieved by the use of special high carbon steel wire and improved processing. It is 15% stronger than the company's best grade of wire rope previously made. Cost will be about 10% higher.

Known as VHS, the new rope will be marketed both by the Hazard Wire Rope and American Cable Divisions. Present diameters range from ½ to 2 in. In addition to greater tensile strength, VHS cable is said to be more wear resistant and to keep its shape under pressure. It has greater fatigue resistance than improved plow steel, is tougher, and resists plastic deformation or the tendency to become "hide-bound." A special new lubricant is used which is designed to last for the life of the rope.

## Field Tests

Field tests of VHS drag lines and shovel hoist ropes showed a decrease in breakage because of shock and misuse. In handling crushed stone, eight 1¼-in. drag cables had an average service life of 170 hr, as compared with an average of 80 hr for the rope previously used. Three of the VHS ropes lasted well over 200 hr. In a similar installation for trap rock, the new cable handled 262,000 yd versus 130,000 to 150,000 yd for the previous rope.



# USS HIGH STRENGTH STEELS

## help build rugged West Virginia Turnpike

THE Manitowoc Engineering Corp. of Manitowoc, Wisconsin, specializes in the building of big, heavy-duty shovels and cranes. Their equipment is designed to do hard, heavy work—without unnecessary breakdowns and failures.

The accomplishment of this objective depended on two things—*proper design and proper materials*. And Manitowoc has discovered that one of the best materials they can use for this purpose is USS MAN-TEN High Strength Steel.

In the 5½ cubic yard shovel shown at work on the West Virginia Turnpike, USS MAN-TEN Steel was used in the boom, main members of the rotating bed and frame, crawler side frames and brake bands, to build greater strength and long-wearing properties into these vital parts.

This is just another example of how USS HIGH STRENGTH STEELS are used by construction equipment manufacturers to make their earth-movers more productive, more durable and less costly to operate and maintain.

USS MAN-TEN, USS COR-TEN and USS TRI-TEN Steels strongly resist wear and impact. They have a yield point 50% higher than structural carbon steel. With these steels it is possible to build maximum strength and toughness into parts ordinarily prone to failure. With them you can materially increase the strength of parts without increasing their weight. Or you can use USS MAN-TEN, USS COR-TEN and USS TRI-TEN Steels in lighter sections than you have been using in carbon steel to reduce weight without reducing strength.

SEE The United States Steel Hour. It's a full-hour TV program presented every other week by United States Steel. Consult your local newspaper for time and station.

UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND  
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • NATIONAL TUBE DIVISION, PITTSBURGH  
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.  
UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS  
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

ON THE WEST VIRGINIA TURNPIKE, near Beckley, West Virginia, the Latrobe Construction Co., Latrobe, Pennsylvania, put the model 4500, 5½ yard Manitowoc Shovel to work. Even through heavy rock and sandstone it averaged 3000 to

6000 yards during each 10-hour shift—two shifts per day. Hard, grueling work like this puts equipment to the test—shows why the superior strength, extra abrasion and fatigue resistance of USS MAN-TEN High Strength Steel really pay off.

Contact our nearest office and let us show you how you can apply USS HIGH STRENGTH STEELS to make your equipment able to do more work with less down time for maintenance and repairs. For 20 years our engineers have cooperated with manufacturers of the best construction equipment in applying these steels.

### SOON TO BE ISSUED

Our new "Design Manual for High Strength Steels" contains comprehensive and practical information that you will find extremely useful in designing your product for greater economy and efficiency by the sound use of high strength steels. Watch our future advertisements for the announcement of the availability of this important publication.

# USS HIGH STRENGTH STEELS



UNITED STATES STEEL





# 5D-190 "World's

195 H.P.



## Exclusive FEATURES of

- World's First 195 H.P. Motor Grader.
- Powered by GM 6-71 Diesel Engine.
- Allison Torqmatic Converter.
- Allison Full Power Shift Transmission —eliminates the need for a clutch.
- Tail Shaft Governor automatically adjusts to meet load conditions.
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- Four Wheel Brakes are standard.
- Ground Speeds range from .85 to 20 M.P.H.

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New High Standards of MOTOR GRADER SERVICE to  
the Construction, Mining, Coal & Logging Industries**

# Most Powerful Motor Grader"

● **For Jobs Requiring BIG  
MOTOR GRADER CAPACITY**



## **the HUBER-WARCO 5D-190**

- Power Sliding Moldboard is standard equipment.
- Hydraulically Cab-Controlled Blade Movement—90° either side with no manual adjustments.
- Full 360° Blade Rotation without removing scarifier teeth.
- Mechanical Steering with Hydraulic Booster gives operator perfect control.
- Wheels and 16:00 x 24 Tires are completely interchangeable.
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THIS PRESTRESSED VIBRATING SCREED can be built in your own shop using a purchased "power pak" assembly consisting of a 2-hp engine, vibrating unit, mounting brackets, end rollers and handles. The screed, if put together properly, is guaranteed to have no "sag."

## Build Your Own Screed

VIBRATING SCREEDS for striking off concrete seem to be getting more popular each year. Such a screed can be pulled along by two men, vibrating the concrete and at the same time leaving a smooth level surface. However, there often arises one problem that has annoyed contractors—that of obtaining the screed beams. Since these beams vary in length, dealers seldom stock them, and the con-

tractor has the choice of making his own or ordering direct from the factory. The latter not only is expensive, but time-consuming as well.

To help any contractor who wants to build his own screed, we checked a manufacturer who sells a "packaged unit," Stow Manufacturing Co. of Binghamton, N. Y. Stow's package consists of a 2-hp engine and a vibrating unit called

the "Power pak," mounting brackets, end rollers and handles. However, these items can't be bolted to just any beam, as there is likely to be a sag in the beam because of the weight of the engine.

To overcome this problem, Stow has designed a prestressed wood beam that incorporates a piece of steel channel bolted to the bottom. Recommended wood is vertical grain "D" select O G Douglas fir,



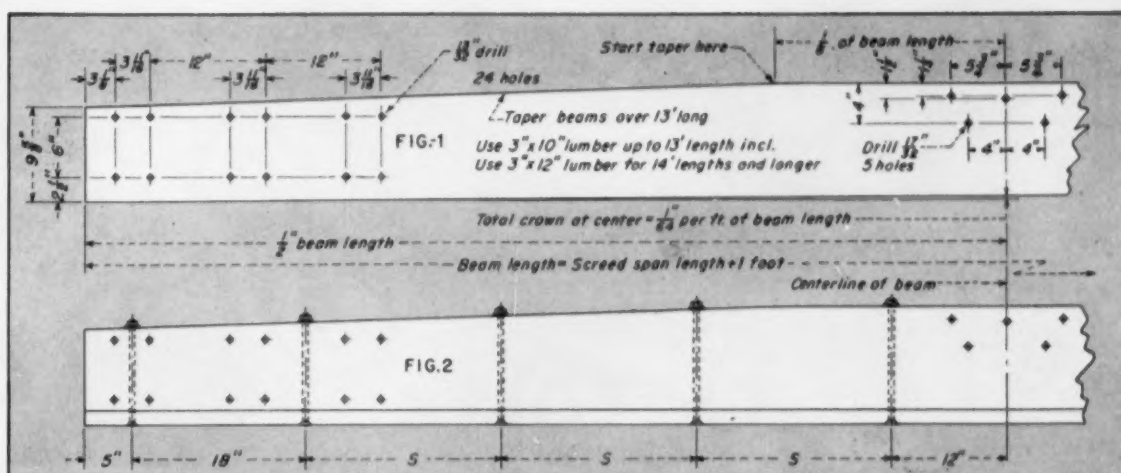
**1** BEAM LENGTH should be 1 ft longer than span. Use a good grade of lumber. Cut crown line with portable saw.



**2** YOU FURNISH your own steel channel for bottom of beam. Bevel the bottom edges of the beam for a real snug fit.



**3** CORRECT SPACING for countersunk holes for vertical bolts on 12-ft screed is 21½ in. apart. See formula for details.



### Just follow these steps:

1. Crown beam as shown in Fig. 1. Taper beams more than 13 ft long.
2. Bevel beam to fit channel, as shown in illustration at right.
3. Drill horizontal holes, as shown in Fig. 1.
4. Drill and countersink holes in steel channel, which is not furnished with kit, as shown

in Figs. 2 and 3. (Bolt spacing formula is given below.) Channel is 3-in., 4.1-lb stock.

5. Clamp channel to beam, and drill vertical holes for bolts.
6. Insert bolts and draw channel up tightly against crown of beam.

**BOLT SPACING FORMULA:** (S): beam length in ft x 12, minus 70; divided by the even number that results in spacing not over 25 in.

finished from 3x10 or 3x12 nominal sizes.

Before attaching the channel, a slight crown is cut in the bottom of the beam. Then when the channel is tightened up against the crown, it becomes prestressed. The

weight of the engine is just enough to cause the beam to give a little, making the bottom edge perfectly straight. The steel channel gives a smoother surface and contributes to the life of the beam.

Here's how to build your own:

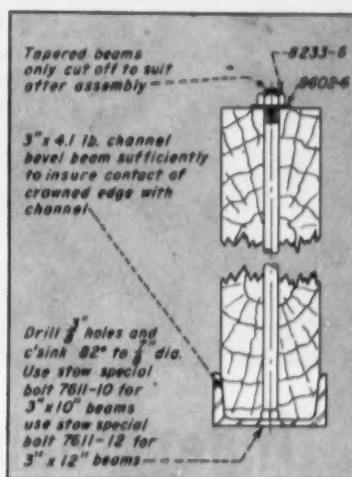
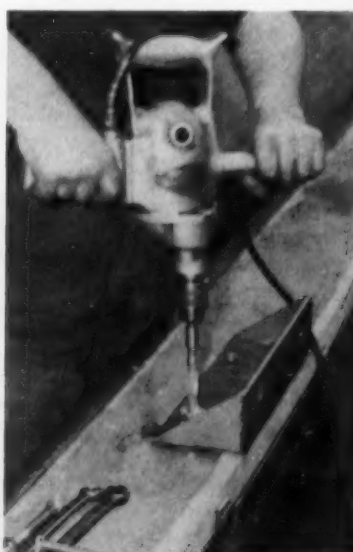


FIG. 3



- 4 SPECIAL FLAT-HEAD BOLTS are furnished in the kit. A clip beneath nuts on one-half of the beam holds throttle control.



- 5 BRACKETS for engine mounting are centered in the middle of the beam, so top surfaces are flush with top edge of beam.



- 6 RUBBER CHANNEL MOUNTS are on each end of beam. Bolt heads on the end of roller assemblies slide into the slots.





## Underground Life Lines of Manhattan

*Third Lincoln Tube now brings total to 41...  
drilled with Ingersoll-Rand equipment*

**T**WENTY vehicular tunnels now link Manhattan with the mainland, New Jersey and Long Island. Each tunnel consists of two separate bores. A third bore now being added to the Lincoln Tunnel will bring the total to 41. It will also keep Ingersoll-Rand's 79-year-old record intact. For here, as on all other Manhattan tubes since the very first one, Ingersoll-Rand drills have been used on the rock work.

The western end of this new Lincoln tube calls for driving through rock approximately 750 ft. of 34 ft. circular tunnel. It is being driven in two sections from the bottom of a shaft 130 ft. deep. After careful consideration of all modern tun-

nel driving methods, I-R Jackdrills and 1 $\frac{3}{4}$ " Carset Jackbits were selected for driving the top heading. The bench will be driven by Ingersoll-Rand Wagon Drills.

When it comes to drilling rock, remember that I-R can supply everything you need from the bit all the way back to the compressor. Let your Ingersoll-Rand representative help plan your next rock job. His experience may be of great value to you.

5-91



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11. Independent Subway
12. Interboro Rapid Transit
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17. Holland Tunnel
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## On-the-Job

# CONTRACTOR-LABOR RELATIONS

By LEON B. KROMER, JR.

### More on Negotiations... 1955

WHETHER YOU ARE a member of a committee negotiating with the building trades unions in your area or not, you are not on the sidelines. Even if you aren't, it's up to you to help your committee by furnishing information that will assist its members during collective bargaining. Last month this column mentioned some do's and don'ts for negotiating committees. Briefly, they were:

Do meet several times prior to sitting down with the union committee to explore the thinking of members of the committee and determine a course of action;

Do prepare a list of proposals for changes that contractors would like in the current agreement;

Don't go unprepared into a meeting with a union negotiating committee.

During the preparatory meetings, develop the techniques of bargaining that will be followed during the meetings with the union negotiators. Remember that union members have been placed on their committee for a purpose. No member of the group is picked casually from a construction job to serve on the committee. Each will have something to contribute. Behind this committee is a staff of experts employed by the international union with many years of experience to back them up. They continually furnish information and assistance to committees, such as the one which will sit opposite you during the period of negotiation.

Your negotiating committee can be considered negligent in protecting the employers' interests if steps aren't taken to prepare for bargaining with such a team. In preparing, cover these points:

1. After building up your proposals for contract changes, determine which member of the committee will act as a spokesman for the committee. This individual is usually the chairman of the committee, whose job it is to lead off the discussion for the employers. The spokesman need not, however,

be the chairman. He may be very good at running a job, but very poor in presenting the contractors' case. In such event it is wiser to choose someone else. While the spokesman will present the contractors' proposals it does not follow that other members of the

committee sit through the meeting and say nothing. It's up to them to back him up all along the way.

2. Of major importance is the firm understanding among the members of the committee that none will speak out during the

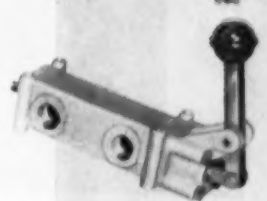
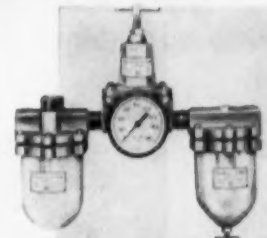
## PNEUMATIC NEWS from Westinghouse

**NEW LUBRICATION CONTROL** . . . This new Westinghouse Type R-1 Lubricating Control Unit gives your air system complete protection. It accurately regulates air pressure—prevents air waste and excessive pressure. It regulates the injection of oil in proportion to the amount of air . . . meters the flow . . . atomizes the oil. It removes water and solid particles from the air stream. One size handles all requirements from 4 to 85 cfm at pressures up to 125 psi.

**NEW FLOW VALVE** . . . This new Westinghouse Type "D" Pilotair Valve controls the flow of air, oil, or water at pressures up to 250 psi. It comes as a two-way, three-way, or four-way valve with lever, treadle, pedal, button, cam, solenoid, or pneumatic operation. New seal and construction assure long life and low maintenance.

**CYLINDERS** . . . Westinghouse makes them in diameters from 1½" to 10", with stroke lengths up to 42". Single or double acting, with or without adjustable cushioning, for foot, flange, or pivot mounting.

**PLUG-IN COUPLERS** . . . Westinghouse makes these full-flow, heavy-duty, quick couplers in both the Push Type, which can be connected and disconnected with one hand, and the Sleeve Type. Two series available: Interchange, for use with other makes of couplers, and Standard.



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. . . and complete facts about the Westinghouse line of quality pneumatic controls, consult the Westinghouse Air Brake Distributor listed in the classified phone directory under "Cylinders: Air."

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Industrial Products Division

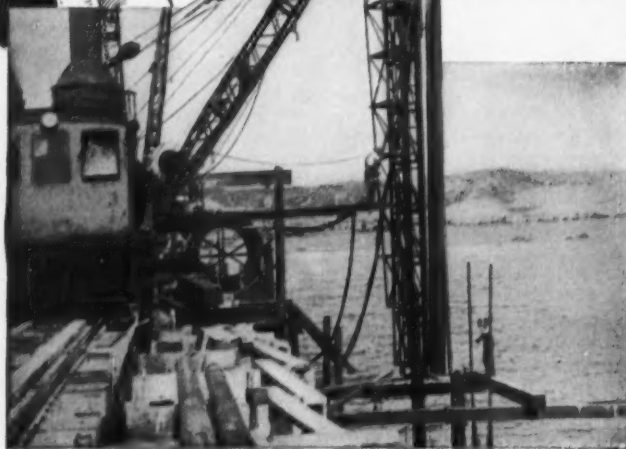
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has no equal for convenience, efficiency and durability in every high or low pressure hose service . . . steam, gas, air, water, hydraulic.



## "GJ-BOSS" *Ground Joint* *Female Coupling, STYLE X-34*

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ASSOCIATE COMPANIES—BUCK IRON COMPANY, INC., QUAKERTOWN, PA. • PRECISION DRAWN STEEL COMPANY, CAMDEN, N.J.

### LABOR . . . Continued

meeting and agree to a union proposal. As a member of a committee representing employers, each member is bound to safeguard the interests of all. None has the right to agree to a union change without first consulting other members of the committee in executive session. In one such instance during negotiations in 1954, the union committee presented a new clause to be included in the agreement. It looked so innocuous that one contractor, before reading it carefully, impulsively said "That's OK with me." The contractors ended up with guaranteeing a full day's pay once a man started to work in the morning regardless of the number of hours he worked—even if weather conditions stopped the job. If a member thinks that a proposal is satisfactory he can always suggest a caucus of the committee. Among themselves the contractors then have the opportunity to discuss and carefully examine the proposal before making a decision. At such times counter proposals may be worked out that may be acceptable.

3. During the preliminary meetings members should determine who among them will get salient facts necessary to back up arguments opposing wage increases or other demands. Such information should include precise data on the cost of living. Don't use national figures which take the country as a whole. If possible, get those applying to your own locality. Write the Bureau of Labor Statistics, U. S. Department of Labor, Washington 25, D. C. for the latest cost-of-living index applying to your city or one near your community. Undertake a survey of estimated construction volume for the coming year; of unemployment of laborers and mechanics during the last six months. The results may surprise you. Many areas that have seasonal unemployment during the winter months have had the heaviest unemployment during the last six months since 1939. While a high volume of construction is predicted for 1955, many areas will actually have a lower volume than last year. Economists will tell you that new construction and increases in employment are not stimulated by higher wage rates. Obtain as much information as possible on the status of negotiations and settlements, if any, in areas surrounding your own. Many times negotiators find

(Continued on page 173)





C. J. Langenfelder Co. of Baltimore, Md. is using all types of Euclid equipment to move 4½ million yards on the Northeast Extension of the Pennsylvania Turnpike. Here a "Euc" Scraper with Torqmatic Drive and 29.5 x 25.00 tires gets a heaped load of about 17 bank yds. for a half mile haul to the fill.

## Euclid Availability Pays Off on another tough job for Langenfelder

● Men who know their earth moving equipment specify "Eucs" for their tough jobs. They know they can depend on Euclids to move more loads per hour at the lowest cost per ton or yard of material moved.

C. J. Langenfelder Co. is a good example. This well-known contractor has been a "Euc" owner for nearly 20 years and last year bought 52 more Euclids for highway and other earth moving jobs. For a 3-section contract on the Northeastern Extension of the Pennsylvania Turnpike, Langenfelder decided on 3 spreads of "Eucs" to move the bulk of 4½ million yards.

Four Euclid Scrapers of 15.5 yd. struck capacity and two Euclid Twin-Power Scrapers are moving 800,000 yds. on Section G . . . hauls average one-half mile with a maximum adverse grade of 10%. Bottom-Dumps of 13 and

17 yd. struck capacity and a fleet of 15 and 22-ton Rear-Dump "Eucs" are working on the other sections.

Langenfelder is standardizing on Euclids with Torqmatic Drive because of their production performance and low operating cost. In spite of tough working conditions caused by weather and the nature of the job, the Euclids are averaging better than 90% availability. Operating personnel say the "Eucs" are getting more work done than any other equipment they've ever used and maintenance costs per machine are lower than they've experienced on any job of this size.

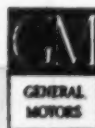
"Eucs" are an important part of the profit picture for many contractors, large and small. It will pay you to get all the facts on the complete line from your Euclid dealer soon.

**EUCLID DIVISION** GENERAL MOTORS CORPORATION, Cleveland 17, Ohio



# Euclid Equipment

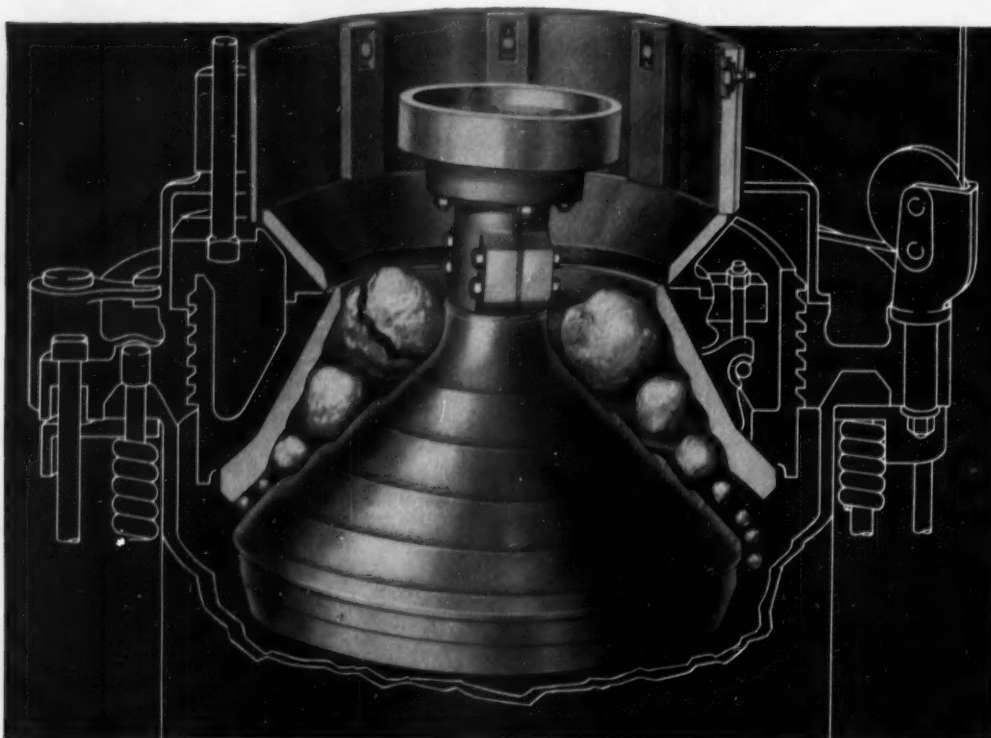
FOR MOVING EARTH, ROCK, COAL AND ORE





# AMSCO® CRUSHER PARTS

**"give" a little to  
TAKE MORE PUNISHMENT**



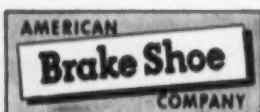
Amsco crusher parts are made of the toughest steel known—manganese steel. Typical of the Amsco line are the mantle and bowl liner in this sketch of a Symons® Cone Crusher. Symons is a registered trademark of Nordberg Manufacturing Company.

Under the violent crushing forces of impact, abrasion and pressure, the surface of Amsco manganese steel crusher parts work-hardens to as high as 500 Brinell. Yet beneath the working surface, the metal remains strong and ductile... able to *give* slightly under crushing forces... developing hardness as a new working surface is exposed by wear. That's why manganese

steel crusher parts last so long, enduring severe abuse and resisting cracking or chipping even when worn thin.

Amsco makes manganese steel crusher parts for most manufacturers of crushing, grinding and pulverizing equipment. Buy your replacement parts from your crusher manufacturer to be sure of getting Amsco manganese steel.

*Amsco also produces other alloy steels with maximum wear resistance under particular service conditions.*



**AMERICAN MANGANESE STEEL DIVISION**  
Chicago Heights, Ill.

**LABOR . . . Continued from page 170**

themselves out in left field when confronted by the union with settlements reached in nearby cities. Compilation of the above data puts your committee in a position to counter arguments advanced by the union.

4. Don't go into the first collective bargaining session with a chip on your shoulder or the attitude that you are "out to get" the union this year. You won't get anywhere. At the same time try to be fair with those union committees that are fair to you. In many cases union officials know and understand the problems of the contractor and are willing to compromise on many bargaining issues. It is to the advantage of contractors to indicate the same attitude of conciliation and compromise.

5. During negotiations don't lose your head. Collective bargaining meetings are not the place for emotional histrionics. No effective agreement ever came out of a clash of emotions. Also, anyone who loses his head often says things that he later regrets. Try to keep all discussions on a business-like basis, and the chances of agreement are vastly improved.

6. After each negotiating session, make it a point to meet in full committee before sitting down again with the union committee. Review the major issues discussed during the previous meetings, re-examine each member's views as to which are acceptable, which should be rejected, proposals of the contractors' committee that should be pushed, etc. Make sure that each member understands the initial approach that is to be adopted when next sitting down with the union committee. Such meetings before each bargaining session can avoid costly mistakes.

7. During the entire period of negotiations there should be no irresponsible discussion of issues by members of the committee. This means no talking on the jobs or over a bar of what the union will settle for, what contractors are willing to accept, etc. Such information has a way of getting back to union officials and can be very damaging. It is the responsibility of the chairman of the committee to report to contractors' meetings, and all information regarding the  
(Continued on next page)

(Advertisement)



**VERTICAL PRESTRESSING OF CONCRETE** walls for a concrete water tank is done with a Re-Mo-Trol hydraulic jack. Six wires, which are secured in the bottom of the wall, are prestressed at one time.

## Remote-Controlled Hydraulic Puller Perfected for Prestressing Concrete

**Construction Men Cite  
Simplex Unit for Fast, Easy Use**

Tensioning cable, wires or rods for concrete prestressing is being done easily and quickly with Simplex hydraulic "center-hole" pullers, a number of construction men report. Because the unit is actually made up of two parts, a remotely controlled ram and a pump, the puller is more easily handled than conventional hydraulic jacks, they explain. The pump unit can be located nearby where it is most convenient for the operator. Many users install a pressure gauge, available as an accessory, between the pump and the puller to check the amount of prestressing applied. This Simplex Re-Mo-Trol puller is also useful on construction jobs as a powerful jack for lifting equipment and building sections, for aligning heavy beams, etc., and for testing the load bearing ability of the soil. Available in 7 models with

capacities from 10 to 100 tons, it works in tight spots and enables workmen to stay at a safe distance while lifting, pulling or pushing.

Made by the world's largest manufacturer of industrial jacks, the Re-Mo-Trol is only one of many Simplex jacks that are useful in the construction industry. Others include the famous Jenny self-contained "center-hole" puller, the No. 310A Emergency Jack which lifts 15 tons on the cap, on the toe, on a cap shoe or at intermediate heights with a chain sling, and standard hydraulic, screw and ratchet lowering jacks. They are all described in General Catalog No. 53. Write for a free copy.

**TEMPLETON, KENLY & CO.**  
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**THE SIMPLEX RE-MO-TROL** for prestressing concrete is basically a powerful pump connected to a remotely controlled "center-hole" hydraulic ram by a high pressure hose.

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#### LABOR . . . Continued

status of negotiations should clear through him.

As soon as negotiations have been completed, the changes in the agreement, if any, should be distributed to all contractors as soon as possible. Make sure that any new provisions are clearly understood to avoid expensive mistakes. Quick distribution of the new agreement will eliminate that period of confusion and possible labor trouble that frequently follows collective bargaining.

#### The Building Trades Legislative Conference

Out of what was probably the largest legislative conference ever held may come results that will directly affect your business. Before more than 2,000 building tradesmen from 45 states and Hawaii who met last month in Washington, Richard J. Gray, President of the AFL Building Trades Department, outlined proposed amendments to three labor laws that cover construction. After a thorough briefing on the technical language of bills and laws, delegates went to Capitol Hill, met their congressmen and senators, discussed the changes and asked for their support.

Two of the laws cover construction performed directly for a federal contracting agency such as Army's Corps of Engineers, Navy's Bureau of Yards & Docks. These are the Eight Hour Law and the Davis-Bacon Act. The Eight Hour Law (actually a group of laws the first of which dates back to the 1890's) requires payment to laborers and mechanics of at least time and one-half the basic hourly rate for all hours worked in excess of eight in any one day. The Davis-Bacon Act requires that specifications for federally financed construction include a schedule of hourly rates predetermined as prevailing in the area by the Secretary of Labor. These rates are the minimum rates that may be paid to laborers and mechanics employed directly at the site of work by the contractor and all subcontractors.

Under the present Eight Hour Law it is possible for a contractor to work 56 hours a week and not pay any overtime. The amendments (contained in S. 1285 and H. R. 4566) supported by the Building Trades Department would

(Continued on page 177)

## INDIAN

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SUPPLY TANK NO. 75G**

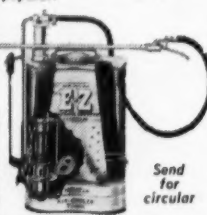


Replaces unsanitary bucket and dipper. Portable. Push button faucet. Takes cold, clean water to workers right on the job. 5 gal. steel tank is curved to fit the back. Sturdy construction. Highly popular.

### E-Z

**5 gal.  
Knapsack  
Sprayer**

For spraying oil on machinery and equipment to prevent rust, etc. 4 to 5 gal. capacity. 24 inch brass extension with brass adjustable nozzle for long or short distance spraying.



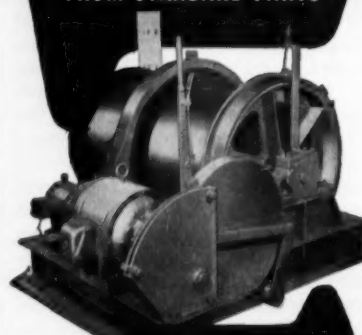
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## Special Hoists FROM STANDARD PARTS



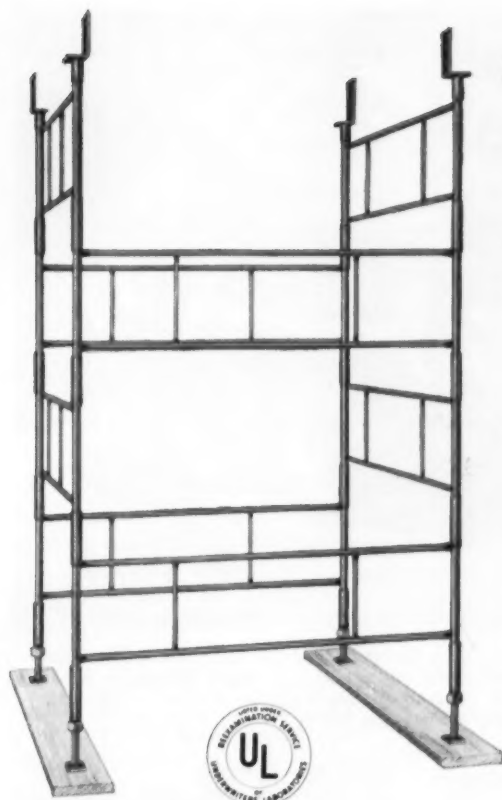
One of Eight Special Electric Incline Hoists with 36" diameter x 26" face drums, built for unbalanced duty of 1,500 lbs. at 200 FPM.

• By modifying and re-combining our standard parts, Superior-Lidgerwood-Mundy can engineer hoists to meet your specific requirements at the lowest possible cost.

Write for bulletins and catalogs

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# Brainard® SHORING SYSTEM



## FREE-STANDING TOWERS

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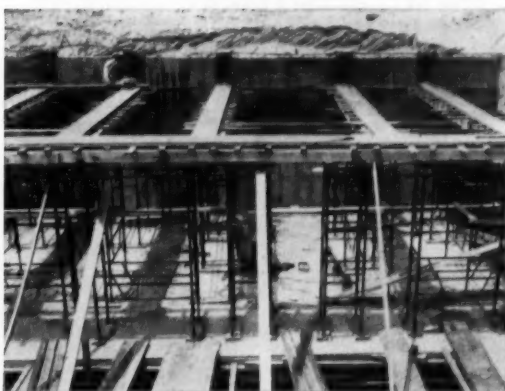
lightweight tubular steel frames—no nuts, bolts or fasteners

### ★ SPEED THE JOB

free-standing towers—wide clear aisles—towers can be used as scaffolding

### ★ CUT COSTS

no cross-bracing necessary—fewer manhours to erect and strip



"One frame" Brainard design serves for both scaffolding and shoring jobs.



● The double-duty Brainard System serves *all* requirements for both scaffolding and shoring. While used basically as shoring members, frames can be planked in either direction and used as scaffolding during erection and dismantling of the shoring framework. Separate equipment for scaffolding and shoring is not necessary.

Basis of the new system is free-standing towers which provide maximum strength and safety . . . ample walk-through space . . . unmatched flexibility of application. By proper selection of frames, towers can be erected in 1-foot steps—the only system with this versatility! Fine adjustments can be made with jack screws inserted in the frames.

For complete information on the double-duty Brainard System write today to Brainard Steel Division, Dept. C-4, Griswold Street, Warren, Ohio.

*Only* **BRAINARD**  
*offers all these benefits:*

- Easy to Assemble
- Easy to Handle
- Easy to Estimate
- Saves Time
- Reduces Labor
- Reduces Inventory

**Brainard®**

SHARONSTEEL

STEEL DIVISION  
SHARON STEEL CORPORATION

**SCAFFOLDING • PALLET RACKS • BUILDING PRODUCTS •  
COMPLETE STRAPPING SYSTEMS & MATERIALS • WELDED  
STEEL TUBING • ELECTRO-GALVANIZED STEEL**

*Offices in principal cities throughout the U. S.*





**New Money Maker for your job . . .** Ford Tandem Axle T-800 Big Job takes payloads (with body) to 30,010 lbs.—up to 2 tons more than other trucks in this class. Short Stroke 170-h.p.

V-8. Heavy duty 11,000-lb. front axle for greater front-end capacity, auxiliary transmissions and full-air brakes available. Rubber-bushed rear suspension. Power Steering standard.

## To get the most for your money **LOOK UNDER THE HOOD!**

Make sure your next truck has a modern short-stroke engine—that gives gas savings of up to 1 gallon in 7 . . . prolongs piston ring life up to 53%. Only Ford offers Short Stroke power in every engine.

Short Stroke engine design for trucks is making headlines. In some makes of trucks it's still in a development stage. In others, it has reached the early production stage. *But only in Ford Trucks has it been advanced by over 3 years of experience and more than 5 billion miles of service.* Only Ford Trucks offer Short Stroke design in every engine, V-8 or Six, for **EXTRA** long life!

Look under the hood for gas-saving Short Stroke power. Look behind the wheel for driver-saving *Driverized* Cab comfort. Look over the axle for trip-saving payload capacity. Ford Triple Economy Trucks give you all three! Call your nearest Ford Dealer now for complete information.



Look under the hood for an engine with a "stroke" as short as, or shorter than its "bore." That's a modern *short-stroke* engine—the *Ford* kind of engine that gives you: reduced piston travel and piston speeds . . . up to 33% less friction, more usable power . . . gas savings up to 1 gallon in 7 . . . less wear on vital moving parts and much longer engine life!

## Ford Triple Economy Trucks

**THE MONEY MAKERS FOR '55**

**LABOR . . . Continued from page 174**

correct this so that at least time and one-half would be paid for all hours worked in excess of 40 a week and in excess of five consecutive days. However, the amendments go further and require payment of this premium time for work performed on Saturdays, Sundays and holidays. How can this affect your business? Many highway agreements, for example, contain a provision that permits "make-up" time at the straight time rate on Saturdays for time lost during the week. Under such clauses if time is lost because of weather during the regular work week the time can be made up on the following Saturday at the regular rate of pay. This practice could no longer be followed under this particular amendment, if passed by Congress. Contractors would have to pay time and one-half. The amendment, as contained in both bills, fails to define the term "holidays." Does it mean only federal? Federal and state? There is a wide area for confusion and misinterpretation.

**Davis-Bacon Extension**

Proposed amendments to the Davis-Bacon Act (also included in the above cited bills) would extend coverage of the Act so that the Secretary of Labor would predetermine minimum wages for construction (a) financed in part by federal funds (highways, for example, which carry a substantial amount of state funds, as well), (b) financed through federal loans, grants, insurance. (This would cover FHA guaranteed mortgages on single family homes, and homes built under the VA home loan program.)

In addition, under the proposed changes, not only would the Secretary of Labor predetermine minimum wages but would also "stipulate" any other cash payments found to be prevailing practice in the area on similar work that must be paid by the contractor and subcontractors. This is intended to include payments for travel expense, travel time, subsistence allowances, etc. It would, more importantly, include payments to health, welfare, retirement and vacation funds financed by employer contributions. The amendment is not at all clear as to how the Secretary of Labor could or would stipulate such extra remuneration.

(Continued on page 242)

7

**trailer advantages**

**no other**

**low-bed can match!**



**Up to 38%  
Saving in Price**

**1**

LaCrosse's larger volume production enables you to buy the best low-bed trailers on the market at savings of 5% to 38%. Wide selection of models up to 75 tons capacity.

**More Payload  
Capacity**

**2**

Advanced engineering design, plus special hi-strength steels, eliminates up to 2000 lbs. of useless dead-weight in LaCrosse trailers . . . lets you haul more payload within total gross limits.

**Stronger  
Gooseneck**

**3**

Exclusive LaCrosse method of forming trailer main beams—without cutting either flange—insures continuous "untwisted" strength from front to rear—with 30% to 40% more rigidity in vital gooseneck section.

**Bigger,  
Safer Brakes**

**4**

Husky 12 1/4" x 6" LaCrosse S-cam brakes run cooler, stop quicker—without slipping or grabbing. Tough 3/4" bolt-on linings outlast ordinary linings up to 45%.

**Replaceable  
Brake Spiders**

**5**

Tapered LaCrosse spindle, with handy bolt-on casting, permits quick, low-cost replacement of brake spider, without having to purchase or remove expensive welded axle assembly. Axles are heat treated and cambered.

**Newly Designed  
Spoke-Wheels**

**6**

Improved cast steel LaCrosse design, with 6 individual rim lugs, saves 30 lbs. of useless weight per wheel . . . simplifies alignment of wheels and rims.

**Lengthwise  
Decking**

**7**

Tough LaCrosse oak planking runs parallel with length of trailer for extra strength and durability in end loading . . . is specially recessed into trailer frame to give minimum loading height with economical drop platform.



**LaCROSSE TRAILER CORPORATION, LaCrosse, Wis.**

☐ Rush complete information on LaCrosse trailers:

☐ Specifications ☐ Prices ☐ Delivery

☐ Send name of nearest LaCrosse Distributor.

☐ We may buy a \_\_\_\_\_ ton trailer about \_\_\_\_\_ (date)

Name \_\_\_\_\_ Title \_\_\_\_\_

Employed by \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

**LaCROSSE**

*America's Favorite LOW-BED TRAILER*



**1** PROTEKTINSUL, a new plastic cover for pipes and ducts, incorporates a slide fastener that locks preformed edges together.



**2** END JOINTS OR FITTINGS are bound tightly with tape made of Krene plastic and lapped over the zippered plastic cover.



**3** AFTER THE JOINTS OR FITTINGS are wrapped with the tape, a thin coating of Bakelite vinyl resin is brushed on to seal it.

## Slide Fastener Holds Pipe Cover in Place

A NEW TYPE plastic cover for pipes and ducts, known as Protektinsul, developed by Miracle Adhesives Corp., New York, utilizes a slide fastener to hold the cover in place. Unlike most coverings, Protektinsul provides ready access to the pipe at any point without damage to the cover.

Installation is simple. The cover is simply wrapped around the insulated pipe and closed by pulling a slide fastener which locks the preformed edges together. End joints or fittings in the line are

wrapped tightly with tape made of Krene plastic which is lapped over itself and the ends of the cover. A coating of Bakelite vinyl resin is then brushed on to seal over the fitting.

Highly resistant to moisture-vapor transmission, mold and mildew, the new covering is recommended for use outdoors or indoors, underground in a steam-distribution system of conduits or on low-pressure building heat supply lines.

It's available in lengths up to 100 ft to cover ½- to 33-in. pipes.

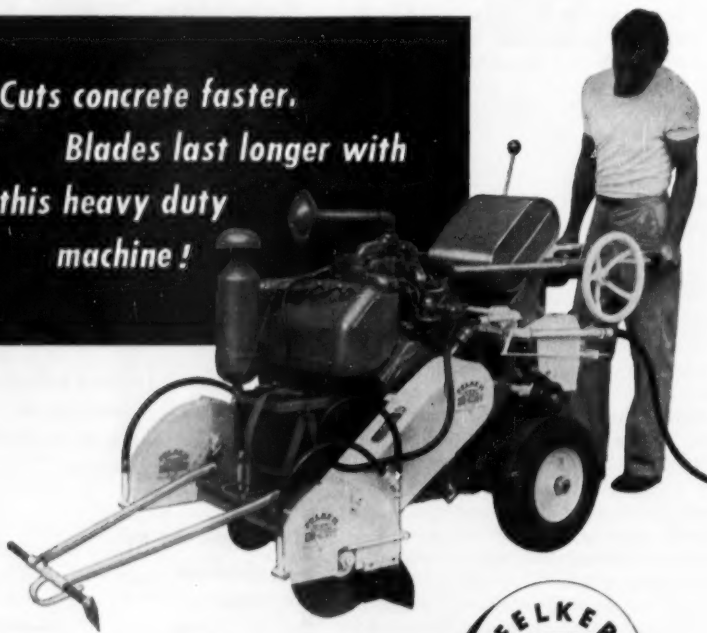
## FELKER DI-MET MODEL 252

Maximum diamond blade life and low footage costs depend upon *free cutting of the blade, without forcing!* The new DI-MET Model 252 Concrete Cutter gives you added performance...now equipped with a full 26 h.p. Wisconsin gasoline engine...supplies over 3 times the power available in many smaller machines!

DI-MET Model 252 is equipped with hydraulic lift and retardant, handles wheel diameters up to 18", cuts to 6¼" deep. Built-in power drive decreases labor...increases footage. Many other features.

For big jobs, get the powerful DI-MET Model 252, the *best* machine for control joint and deep slab cutting! Ask for literature on the Model 252 and other DI-MET Concrete Cutters.

*Cuts concrete faster.  
Blades last longer with  
this heavy duty  
machine!*



**FELKER MANUFACTURING CO.** TORRANCE • CALIFORNIA

*World's Largest and Oldest Manufacturer of Diamond Abrasive Cut-Off Wheels and Machines*



# Cities Service C-300 cuts make-up oil 600%!

Stone cold facts from the

Chenoa Stone Company, Chenoa, Illinois



#### Mountains of Work at Chenoa, Ill.

5 one-and-a-half yard shovels . . . 2 diesel-driven crushers . . . 2 Dumpsters . . . a limestone crushing mill. Part of the equipment constantly in use at Chenoa Stone Company . . . constantly powered and lubricated by Cities Service products.

Here's the story in the words of David D. Vickrey, Superintendent of Chenoa Stone Company:

"About two years ago, we switched from another nationally prominent brand oil to Cities Service C-300 Series Motor Oil. The results have been amazing.

"C-300's detergent action completely eliminated a bothersome sludge problem. On our first three oil changes with it, we removed 5 gallons of sludge from each of our 200 horsepower diesels. Since then, these diesels have remained clean, and today, when we open the crankcase, we can even see the paint.

"We also are using far less oil between changes. In fact Cities Service C-300 actually cut make-up oil from 5 to 6 gallons every 150 hours to less than

one gallon every 150 hours!

"In addition to C-300 oil, we use Cities Service Lubricants for every requirement . . . Diesel Fuel, Gasolenes, Trojan M Grease and hydraulic fluid. We have been completely satisfied with every product.

"Cities Service has given us top-notch service, the best we've ever had. We are better supplied than ever and have learned to rely on Cities Service dependability."

There is nothing Cities Service could possibly add to Mr. Vickrey's statement, except a reminder to contact your local Cities Service representative in order that you may enjoy similar results in *your* operation. Or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

## CITIES SERVICE

QUALITY PETROLEUM PRODUCTS





EXISTING CANAL SURFACE is excavated to grade by Lorain crane with dragline bucket, preliminary to lining with asphalt. Excavated

material is stockpiled adjacent to the canal and replaced as earth cover after the lining has been completed.

## Novel Equipment Use Speeds Canal

CLEVER INNOVATIONS in the use of common items of construction equipment resulted in a profitable irrigation project recently for Harry F. Berggren & Sons, Inc., general contractors of Scottsbluff, Neb.

In order to conserve irrigation water and restore farm land that has become waterlogged from canal seepage, the Bureau of Reclamation has been letting contracts for as-

phalt lining of a number of canals in eastern Wyoming and western Nebraska.

The canals to be lined were first roughly excavated with draglines. The canal bottoms vary in width from 12 to 50 ft, with depths from 7 to 30 ft, sloped 2:1.

Since there were no rigid grading requirements, the excavated section was dragged to shape rather than more finely graded with dozer

or grader. This operation was performed by a Cat D7 traveling in the bottom of the cut or along the top of either slope. The tractor pulled a drag, either an iron cattle guard or a crawler track, including rails and pads. This drag smooths out the dragline teeth marks and breaks up any rough clods.

Compaction was supplied by a 4,000-lb double-drum smooth roller. Instead of towing the roller be-



CANAL PRISM, after being roughly excavated, is dragged in lieu of requirements. An iron cattle guard or crawler track, including rails and pads, serves as a ready-made drag.



4,000-LB STEEL ROLLER attached to the power units of two Cat D7 tractors at the top of either slope of the canal compacts the surface to its final shape. Tractor pulls roller perpendicular to the slope rather than parallel to it.

## Lining Job for Nebraska Contractor

hind a tractor, Berggren decided he could perform the work more efficiently if he kept his equipment out of the cut. Therefore, he attached the roller to the power-control unit of a tractor at the top of the cut slope. The tractor releases the roller which follows the slope down to the toe. A second Cat D7 at the other side of the cut then tows it across the bottom of the canal prism and up the other slope

with its power-control unit. When the roller is returned to the first tractor, it is loaded on to a metal pan attached to the side of the tractor. The tractor next moves forward about 10 ft dragging along the roller, on the pan, sled-fashion, and repeats the operation. The canal surface is then sprinkled with water to prevent the formation of dust particles which might result in pin-holing of the asphalt surfacing.

Later, an oil distributor with a special side-boom and bar, traveling either in the bottom or above the top of slope of the canal, applies a seal coat of asphalt approximately  $\frac{3}{8}$  in. thick in two passes. The treating oil is a catalytically treated residue oil, and must be applied at approximately 425 deg F.

After asphalt treatment, the surface is covered with 1 ft of earth and 6 in. of coarse gravel.

## SALES AND ★ SERVICE ★

News of manufacturers' activities designed to assist the reader in the purchase of machinery, equipment and materials and help him obtain quick service on parts and maintenance.

### Distributor Appointments

**Clark Equipment Co.:** Midwest Equipment Co., Fargo and Bismarck, N. D., has been appointed to sell

and service the Michigan line of excavator cranes, in the east and west portions of North Dakota and in the following counties of Montana: Valley, Daniels, Sheridan, Roosevelt and Richland. Also appointed to handle the Michigan line is the C. N. Mason Co., 1711 N. O St., Pensacola, Fla. which will handle all transactions in the state of Florida west of the Apalachicola River.

**Buck Equipment Corp.:** R. S. Armstrong & Bros. Co., of Atlanta, Ga., has been appointed to sell and service all models of Buck hoisting machines, both the trailer-mounted models and the new Pelican truck-mounted units in the city of Atlanta.

In the city of Cleveland, Ohio, the W. T. Walsh Equipment Co. will be the authorized Buck dealer. Also appointed as an authorized Buck dealer is the White Star Machinery & Supply Co., Inc. for Wichita, Kan.

**Carboloy Dept., General Electric Co.:** Recently appointed as an authorized distributor of this company is the B&H Tool Supply Co. 5535 Woodward Ave., Detroit, carrying the Department's line of standard and special carbide metal cutting tools, as well as its diamond grinding wheel dressers.

**Galion Allsteel Body Co.:** Appointment of Acme Spring & Equipment Co., Columbus, Ohio, as distributors of Galion Allsteel dump bodies and hydraulic hoists in central and southern Ohio will provide for this district complete maintenance and parts service, together with modern hoist and body installation facilities. A complete stock of Galion Allsteel bodies, hoists, and Load-evator hydraulic end loaders will be carried.

**Euclid Div., General Motors Corp.:** The following new dealers have been authorized to provide parts service as well as sales facilities for all models of Detroit diesel engines used in Euclid earthmoving equipment: Conley-Lott Machinery, Lubbock, Tex.; Contractors Machinery Co., Detroit, Mich.; Hubbard & Floyd, Inc., New York City; Hall-Perry Machinery, Butte, Mont.; Foulger Equipment Co., Salt Lake City; G. H. Godsall Equipment, Ltd., Toronto, and Llewellyn Machinery Corp., Miami, for southern Florida.

**The Prime Mover Co.:** Announces the appointment of Loggers & Contractors Machinery Co., Portland and Eugene, Ore., as their distributors for Oregon and southern Washington, and Northern Commercial Co. as distributor for Alaska. The Prime-Mover Co. is manufacturer of a  $\frac{3}{4}$ -ton capacity powered wheelbarrow which is widely used in construction work and for placing and hauling building materials.

**Chain Belt Co.:** Announces the appointment of Nesbitt Equipment Co., 451 Calvert Ave., Alexandria, Va., as exclusive distributor of Rex construction machinery equipment in Montgomery and Prince George's County in the District of Columbia and in the following counties in Virginia: Accomac, Arlington, Clarke, Fairfax, Frederick, Loudoun, North Hampton, Prince Williams.

**LeTourneau-Westinghouse Co.:** Now handling this company's line of high-speed, rubber-tired earthmoving equipment in the St. Louis area, including Missouri and southern Illinois is the O. B. Avery Co., 1325 Macklind Ave., St. Louis.

(Continued on page 185)

Erects itself . . . completely set up in only 23 minutes.

Pay only one man instead of 5

Tow it right to the jobsite.

Ready-rigged tower unfolds like a jack-knife.

### ...with BUCK Heavy-Duty Hoisting Machine

Save profits for yourself. Instead of hiring four or five men to set up hoisting operations, use only *one* . . . and the BUCK Hoisting Machine.

BUCK erects itself, works itself, lowers itself . . . lifts full ton of materials to any desired level. Tower is self-erecting to 40 ft. unloading height . . . can be used with easy-to-add sections for greater height. Automatically retracting wheels eliminate heavy lifting, skidding and jacking. Self-dumping concrete bucket and Chicago boom available as accessories.

Get better acquainted with BUCK. Write for all the money-saving facts today.

Some desirable territories open to dealers . . . write for details.

**BUCK EQUIPMENT CORP.**

206 BUTLER ST., CINCINNATI 2, OHIO

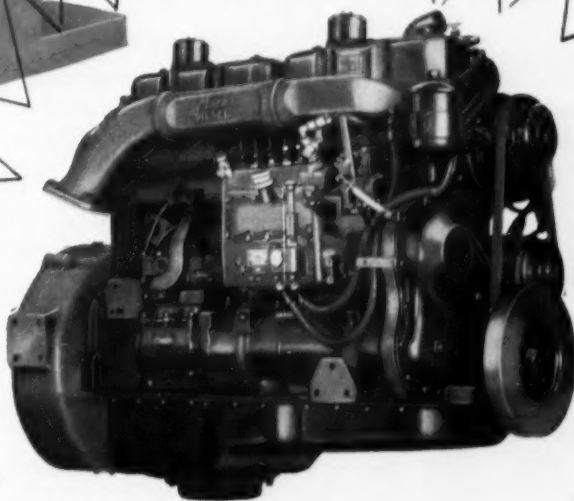
# STILL



# 1

# ... IN DIESEL TRUCK SALES MACK

FAMOUS MACK  
THERMODYNE® DIESEL  
—renowned among  
leading fleet operators  
for its amazing fuel  
economy, powerful per-  
formance, and freedom  
from down-time.



**During 1954 operators again bought more Mack diesel-powered trucks than any other make.**

**What's more—for '54 Mack earned an even larger share of the market—30.74% of all diesel truck sales—every year a greater share than the year before.**

The reasons for Mack's increasing diesel sales and continued top-ranking position are not hard to find. Throughout the nation, operators—large and small—hail the unrivalled fuel economy, reliability and efficiency of the Mack Thermodyne Diesel engine.

No other engine introduced in recent years has met with such enthusiastic owner preference. No

other engine gives such big savings in more miles per gallon, less down-time and stand-out performance. A worthy inheritor of the famous Thermodyne name, this great diesel has surpassed even the highest expectations of its manufacturer.

Ask any user of the Mack Thermodyne Diesel. His experience explains why, more and more, the swing is to Mack.

**MACK TRUCKS** Empire State Building, New York 1, N. Y.



# SUPERIOR

## CONTINUOUS THREADED COIL RODS . . . . .



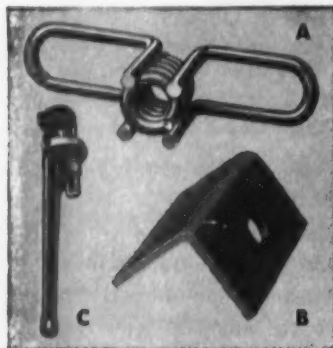
**MAKES  
DIFFICULT  
TYING JOBS  
*Easy . . . . .***

Superior Continuous Threaded Coil Rods, with or without Coil Wing Nuts and Corner Brackets, are a valuable supplement to Superior Coil Ties and standard working parts when job conditions are unusual or difficult.

In three typical applications, shown at the right, these Continuous Threaded Rods are used; (1) to tie form corners; (2) as an anchor rod tie down and as coil bolts; and (3) as a coupling for two coil ties providing an adjustable form tie.

Available in  $\frac{1}{2}$ ",  $\frac{3}{4}$ ", and 1" diameters and in any length up to 10 ft., Superior Continuous Threaded Coil Rods in quantities can be cut to length on the job with a heavy-duty hand Coil Rod Cutter.

Superior Continuous Threaded Coil Rods are the answer to unusual or difficult tying problems. When you use Superior you are assured of the best in design, material, and workmanship.



### A-COIL WING NUTS

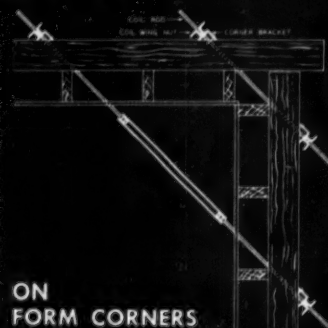
Coarse helix coils form the threads. Easily applied and removed from rod. Develops maximum capacity of rods.

### B-CORNER BRACKET

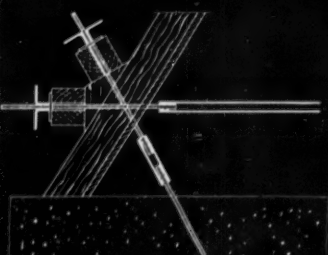
An exclusive Superior feature. Provides simple, efficient method of tying form corners and bulkheads.

### C-SPECIAL COIL ROD WRENCH

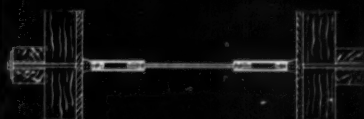
Heavy-duty Stillson type wrench with special jaws for gripping and turning Coil Rods with least damage to threads.



ON  
FORM CORNERS



FOR ANCHORAGE



AS AN INTERNAL TIE  
Two Coil Ties and a length of  
Coil Rod make an adjustable  
form tie and spreader.

## SUPERIOR CONCRETE ACCESSORIES, INC.

4110 Wrightwood Avenue, Chicago 39, Illinois  
New York Office: 1725 Broadway, New York 19, N.Y.  
Pacific Coast Plant: 2100 Williams St., San Leandro, Calif.

NOW AVAILABLE . . . LATEST  
EDITION OF CATALOG 500. Con-  
tains a valuable table for spacing  
studs, wales, and form ties. RE-  
QUEST A COPY TODAY.

## SALES AND SERVICE . . .

Continued from page 182

### On the Sales Front

**Frank G. Hough Co.:** Has located resident factory service representatives in Libertyville, Ill., Syracuse, N. Y., Atlanta, Ga., Phoenix, Ariz. and Denver, Colo.

**Leschen Wire Rope Div., H. K. Porter Co., Inc.:** Fred S. Shumaker has been named district representative of the Michigan sales area covering the lower peninsula of Michigan and part of the upper peninsula.

**International Harvester Co.:** Has appointed Walter H. Tudor as industrial power territory manager of the Chicago area. His territory includes all of Wisconsin and the northern two-thirds of Illinois.

**Huber-Warco Co.:** Two divisional sales managers have been appointed to handle this company's complete line of graders, tandem rollers and three-wheel rollers: Glen N. Porter of Marion, Ohio, will direct sales efforts east of the Mississippi, the eastern half of Canada and in Cuba. Joseph D. Whalen of Walnut Creek, Calif., will head sales activities in the western half of Canada and the United States, Mexico, Hawaii and Alaska.

**Atlas Powder Co.:** The eastern district explosive sales headquarters have been transferred from New York to Wilmington where the company's general offices are located. Atlas also announces that A. F. Hutcheson, resident manager of the eastern district sub-offices at Tamaqua and Wilkes-Barre, Pa., has moved his headquarters from Tamaqua to Wilkes-Barre.

**Joy Manufacturing Co.:** Announces the following appointments: William F. Brady is the new manager of Distributor Sales, with headquarters at the home office in Pittsburgh; J. E. Douglas is assistant district sales manager of the company's El Paso territory; Darrell Smith becomes manager of the Dallas district office, succeeding J. A. Noyes, retired.

**United States Rubber Co.:** Three appointments have been announced in the truck tire departments: H. W. Dodenhoff has been made manager of sales; J. F. Arthur becomes manager of fleet sales, and C. E. Drennen has been named manager of national accounts.

**D. W. Onan & Sons Inc.:** John B. Janusz, Eng. E.G.C., of Montreal, has been appointed zone manager for the sale of electric generating plants in eastern Canada. He will set up Onan distributor and sales organiza-

(Continued on next page)

# THORITE

Nonshrink grouting compound  
patches mortar joints  
between glazed tile.

Clean, 20  
minute setting



PEPSI COLA, METROPOLITAN  
BOTTLING COMPANY  
BRIGHTON 35, BOSTON  
MASSACHUSETTS

valuable for many uses!

Use THORITE for patching blistered concrete, where reinforcing rods are exposed and corroded, for patching cornices, sills, lintels, belt courses, grain elevators, bridges, underpasses, reservoirs, dams, water filtration plants.

### SECURING REINFORCING RODS INTO CONCRETE



Surface and reinforcing rods are sandblasted and thoroughly cleaned. An application of Thorite, by brush, over rods and concrete, previous to filling patch with Thorite, by trowel, is made.

Get our pictorially described literature

"HOW TO DO IT"

STANDARD DRY WALL PRODUCTS INC.

NEW EAGLE, PENNSYLVANIA



"We Didn't Build a Bridge, We Moved a River"...

A. S. Wikstrom, Inc.



## One Sauerman Scraper

helped by spreading 200 cu. yds. of muck per hour

Spreading 260,000 cu. yds. of plastic material as excavation progressed in the rechanneling of the winding Clyde River was one of the jobs done by A. S. Wikstrom, Inc. in the Thruway construction near Seneca Falls, New York.

A 6-cu. yd. Sauerman Crescent Scraper, equipped with carrier and track cable, working from a 1½-cu. yd. crane handled the job at the rate of 200 cu. yds. per hr. Length of haul was about 300 ft. An Athey Wagon served as an anchor for the track cable and provided the necessary mobility. A spud was used to support the boom and also allowed the operator to take advantage of almost the full boom height for fast gravity return of the scraper to digging point.

This set-up supplanted an earlier recasting arrangement using several machines. It operated at a considerable savings over previous cost.

For more details on the Clyde River project ask for Sauerman News No. 139. Request Field Report 219 and Catalog J. for specific information on the use of scrapers with boom machines. Sauerman engineers will tell you the largest Crescent scraper your dragline or tractor can handle, if you will give us the make, model number and boom length on cranes.

**SAUERMAN BROS. INC.**

612 S. 28th Ave., BELLWOOD, ILL.

**CUT COSTS WITH A...**

**GREASLESS MECHANICAL SEAL**

**CARVER PUMPS** ... the only Contractors Self Priming Pump with Greasless Mechanical Seal ... are your best guarantee for maximum performance at minimum operating cost.

No expensive time or material required to service this pump. Trouble-free and maintenance-free, a CARVER PUMP is "Your Best Buy for Better Performance."

Write the factory or see your CARVER Distributor for complete information.



**CARVER PUMP CO.**  
1402 Hershey Ave., Muscatine, Iowa

*The quality name in pumps*

## SALES AND SERVICE . . . Continued

tions in Ontario, Quebec and the Maritime Provinces.

**LeTourneau - Westinghouse Co.:** Steve A. Baterson has been named district sales representative for an eastern area, including southern New York, New Jersey, Maryland, Delaware and eastern Pennsylvania. His headquarters will be in Philadelphia.

**Ainsworth Manufacturing Corp.** Russell H. Randolph has been named manager of the Mult-a-Frame division which manufactures steel framing for use in materials-handling operations and electrical and mechanical construction. He also will manage all Mult-a-Frame operations.

**Harnischfeger Corp.:** Bernard Pratte has been appointed general manager of the Pacific division of this corporation. His responsibilities will cover distribution operations for all eleven western states, as well as administrative duties in connection with manufacturing activities of the Los Angeles plant.

**Marmon-Herrington Co., Inc.:** Announces the appointment of Edward F. Ray as general sales manager of its All-Wheel-Drive Truck Division. Mr. Ray will supervise a sales organization of factory representatives and distributors in the United States and other countries.

## In the Main Office

**Wico Electric Co.:** At a special directors' meeting recently the following officers were elected: Harold M. Sauers, Suffield, Conn., president; Allen L. Brownlee, Westfield, Mass., first vice-president; Remington H. Warner, Springfield, Mass., treasurer.

**Pittsburgh Plate Glass Co.:** The retirement of John A. Wilson, vice-president after nearly 25 years' association with the company in the glass division has been announced by Harvey B. Higgins, president of the firm.

**The O'Brien Corp.:** Howard W. Goetz has been appointed supervisor of the architectural finishes division of the corporation's main laboratories in South Bend, Ind. He will supervise all the research and development of the architectural finishes and approve or recommend formulas for production of these products in the O'Brien line.

**International Nickel Co. Inc.:** Kenneth A. DeLonge has been placed in charge of the Iron and Non-Ferrous Castings Section of the Development and Research Division. This section

(Continued on page 189)



# "Our TD-9 Skid-Shovel Saves 20 Gallons of Fuel Daily"



**CHARGING THE HOPPER** at the rate of 125 yards hourly is just one job the TD-9 INTERNATIONAL DROTT Skid-Shovel handles so fast and efficiently. It also strips overburden and loads crushed gravel into haul trucks.

## Gravel plant owner makes big equipment savings, too, replacing bigger crawler-dozer with INTERNATIONAL DROTT loader

Ray Garrett, gravel plant owner at Montrose, South Dakota, cut his equipment investment and fuel bill by putting a 41-horsepower TD-9 INTERNATIONAL DROTT Skid-Shovel to work on his materials handling.

Here's Ray's own report on his double-barreled savings:

*"We feed up to 125 yards of gravel into the crusher hourly. A larger crawler and dozer used to do the job that's now being handled by the TD-9 INTERNATIONAL DROTT Skid-Shovel."*

*"There's been no drop in production but we're saving 20 gallons of fuel daily in addition to the reduced equipment cost. The Skid-Shovel's a lot more versatile, too, handling many jobs the crawler-dozer was unable to touch."*

Chances are you may be wasting power and equipment on your materials handling jobs—if you're not powering them with INTERNATIONAL DROTT Skid-Shovels. Best way to find out is to call your INTERNATIONAL Industrial Power Distributor for a demonstration. You stand to gain plenty—in lower equipment costs, lower fuel bills, greater equipment versatility—so call him soon.

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS  
DROTT MANUFACTURING CORP., MILWAUKEE 8, WISCONSIN



**"SHE'S POWERFUL AND FAST,"** says operator Allen Alsgood. *"I have a clear view of the work at all times and the Skid-Shovel is a snap to operate,"* he adds.



**INTERNATIONAL  
DROTT**



*Minimize*  
**PITTING**  
*Eliminate*  
**PATCHING**



## *The Wonder Grease for Concrete Forms*

**R**EGARDLESS of whether you use steel or wooden forms for concrete work — you can apply Globe Form Grease by spray, brush, or swab. This time-tested paste emulsion will reduce peeling and pitting to a minimum when forms are removed, and practically eliminate patching.

Due to its special adhering qualities, Globe Form Grease requires only a thin coating for utmost effectiveness. In fact, one gallon adequately covers approximately 200 square feet! And in addition — Globe Form is stainless, leaves a whiter smoother surface, and eliminates the need for painting.

Why not write for full particulars today? Once you use Globe Form Grease, you'll understand why engineers and contractors hail it as the "wonder grease" for concrete forms.

**OILS and  
GREASES**  
for every purpose  
**DIESEL  
STEAM  
AUTOMOTIVE**

Write for descriptive  
booklet of all Borne,  
Scrymser products.

**BORNE**  
Since 1874  
**SCRYMSER**

Our Laboratory  
Facilities are  
always at your  
disposal

**BORNE, SCRYMSER COMPANY**

ELIZABETH, N. J. • CHARLOTTE, N. C.

## SALES AND SERVICE . . .

Continued from page 186

is concerned with Ni-Hard Ni-Resist, copper-base alloys, metal-working rolls and ductile iron, which are special types of cast iron with unusual combinations of engineering properties.

### New Company

**General Road Machines, Inc.**, Niles, Ohio, will manufacture and distribute a complete line of concrete highway and airport equipment, it is announced. The new firm's officers—all of whom have resigned their former positions with Heltzel Steel Form & Iron Co. and Flexible Road Joint Machine Co.—are: Donald T. Heltzel, president and treasurer; Jack J. Marcello and Michael Hudis, vice-presidents. General Road is already delivering concrete finishing machines, road forms and miscellaneous concrete equipment. Scheduled for mid-May production is a new concrete spreader. It will be followed at about 4-week intervals by a concrete float machine, a subgrader, and a special final finisher.

### Special Mention

**Duff-Norton Manufacturing Co.**: Announces that it has purchased the Coffing Hoist Co., of Danville, Ill., and will operate the firm in the future as the Coffing Hoist Division of Duff Norton Co.

**Inland Steel Co.**: Has acquired Arthur C. Harvey Co., Boston steel merchandising firm, and will merge that business with the New England operations of Joseph T. Ryerson & Son, Inc. steel warehousing subsidiary of the Chicago steel company. The Ryerson firm is a national steel supply service with warehouses in 16 cities from coast to coast.

**American Hoist & Derrick Co.**: The acquisition of the Thomas Laughlin Co. of Portland, Me., is announced by John E. Carroll, president. The Thomas Laughlin Co. is well established in the forged wire rope accessory business, and the merger enables American Hoist to market the joint products more effectively by offering a complete line of fittings and wire-rope accessories from a single source.

### Association Activities

**National Sand & Gravel Association**: Robert P. McKenrick, vice-president and general manager of Blaw-Knox Co.'s construction equipment division, has been re-elected chairman of the manufacturers' division. He also will serve on the Association's board of directors.

## You Can Be SURE, Too

if it's a  
**ROGERS  
TRAILER**



In purchasing this 100 ton transformer The Consumer Power Company of Flint, Michigan, showed faith in the Westinghouse slogan "You Can Be SURE If Its Westinghouse."

In placing a large percentage of this load on one of their Rogers Trailers, P. Van Harren & Sons of Bay City, Michigan, again displayed their faith in the rugged dependability and braking reliability of these trailers.

This transformer, the heaviest load ever moved over Flint Streets, measured 20' x 15' x 10'. The move was made under the supervision of Venus and Russell Van Harren with Jacob Smith as rigger foreman.

You, too, can place the utmost confidence in Rogers Trailers, regardless of the type needed or the difficult nature of the loads it will be required to haul.



YOU GET MORE  
FOR YOUR MONEY  
IN A  
**ROGERS  
TRAILER**

EXPERIENCE  
builds 'em

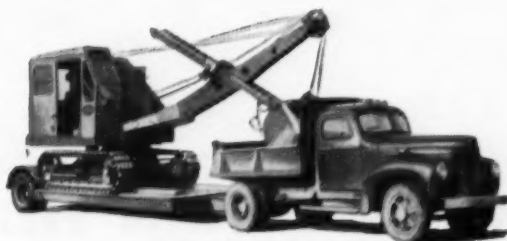


PERFORMANCE  
sells 'em

**ROGERS BROS. CORP.**  
ALBION, PENNA. CABLE: BROSITES

Export Office: 50 Church St., New York 7, N. Y., U. S. A. Cable Address: BROSITES

220 Orchard Street



Also of timely interest is this ROGERS Tag-A-Long trailer which makes a dump truck serve as a tractor and effects sizeable savings for contractors.

# Ohio Turnpike built to last

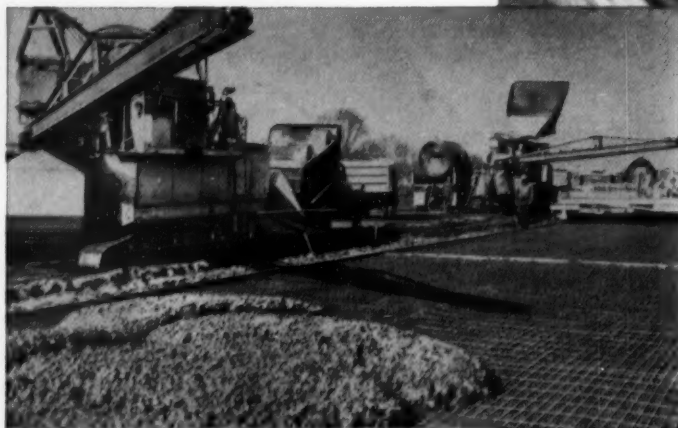
with

## American Welded Wire Fabric

The pavement on the new Ohio Turnpike must withstand tremendous daily punishment. The Ohio Turnpike Commission has provided the needed strength and resistance to cracking by reinforcing the concrete with American Welded Wire Fabric.

The American Welded Wire Fabric together with adequately reinforced joints provides maximum corner protection, thereby increasing the strength of the concrete slab over thirty percent compared to slabs of other designs; thus insuring a much longer life for the pavement.

You will find American Welded Wire Fabric Reinforcement adding strength and life to other famous highways—the New York State Thruway, The Pennsylvania Turnpike, the Chicago Expressway—as well as secondary roads, and city streets. Specify it for all your paving.



IT PAYS TO ASK

*"is it Reinforced?"*

### AMERICAN STEEL & WIRE DIVISION

UNITED STATES STEEL, GENERAL OFFICES: CLEVELAND, OHIO

COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS

TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS • UNITED STATES STEEL EXPORT COMPANY, NEW YORK



USS

## USS AMERICAN WELDED WIRE FABRIC

UNITED STATES STEEL





**ROAD JOINTS LIKE THIS**—147,000 linear feet of them—were shipped to the job site assembled. These joints were specially designed by American Steel & Wire, to assure a joint assembly with all members in proper alignment at all times.

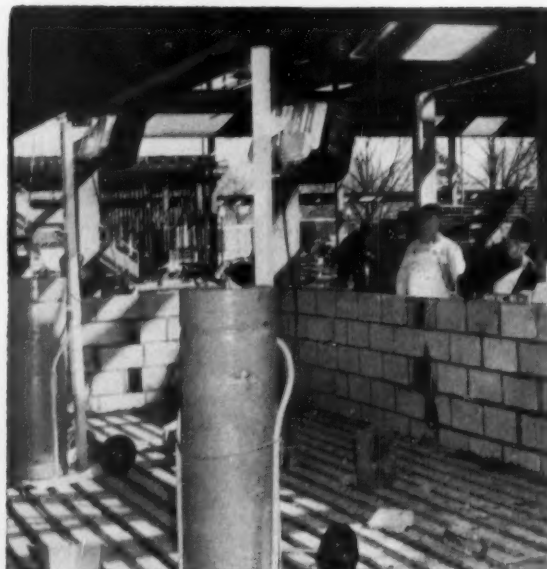


# CONSTRUCTION EQUIPMENT NEWS



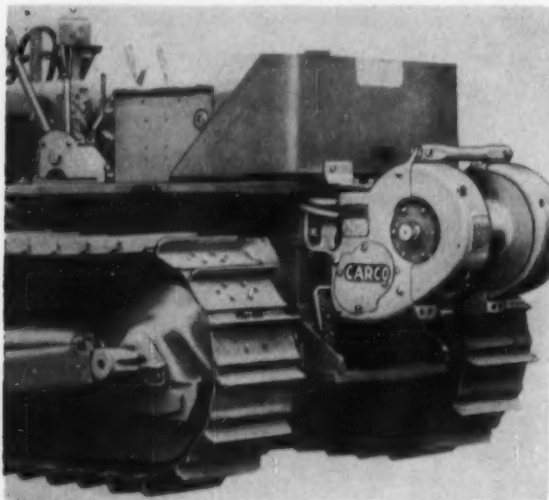
## Fiberglas Insulation

Designed for use with protected metal, cement asbestos, aluminum or galvanized sheets, Fiberglas Industrial Building insulation provides thermal and acoustical insulation for roofs and walls, as well as an attractive interior finish. Dimensionally stable, it will not expand, contract, rot or decay.—Owens-Corning Fiberglas Corp., Toledo 1, Ohio.



## Infra-Red Heater

The use of the Infra Rayhead Heater permits uninterrupted concrete and masonry work the year round, without the erection of expensive coverings. The heater heats up quickly, blanketing 80 to 100 sq ft. Because it heats by radiation, unaffected by air temperature, it is suitable for outdoor work.—Perfection Stove Co., 7609 Platt Ave., Cleveland, Ohio.



## Tractor Winch

Feature of the new E-24 tractor winch is ground-operated free-spooling, allowing one-man operation in which the operator acts as his own line handler. Other improvements include a larger diameter cable drum and greater line capacity, a closed brake for longer lining life, less over-all weight, and a new case.—Pacific Car & Foundry Co., Renton, Wash.



## Tractor Roller

Designed for easy installation in a matter of minutes on many popular makes of low-cost tractors, this rear-mounted roller utilizes the combined weight of the roller and the tractor rear end to produce 90 lb of compaction per sq in. without fluid additions. Roller raises hydraulically for street travel.—Shawnee Mfg. Co., 1947 N. Topeka Ave., Topeka, Kan.

## On-the-Job Previews of Machinery, Tools and Equipment



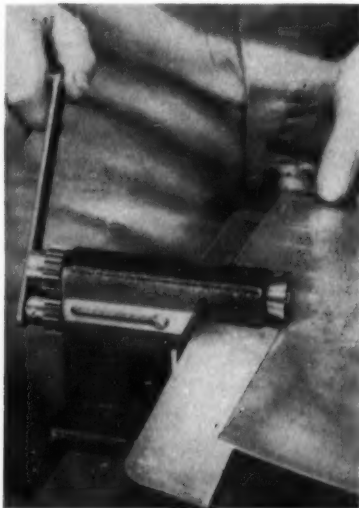
### New Bay City CraneMobile

Model 151-T41, a new 15-ton capacity CraneMobile, with standard equipment, including 30-ft boom, weighs 41,500 lb. Weight is well distributed, however, allowing travel on most highways without permit. Heavy-duty transmission provides 12 forward speeds to a maximum of 44 mph and three reverse speeds. —Bay City Shovels, Inc., Bay City, Mich.



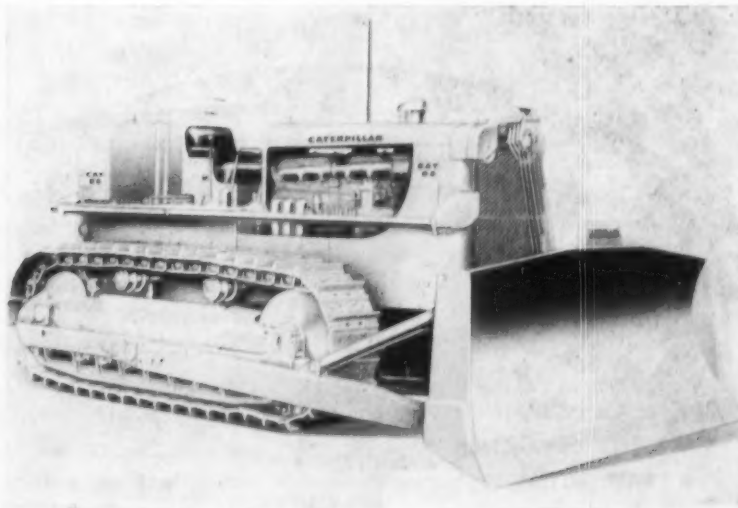
### Grizzly Screen

Suitable for installation on all hydraulically operated Austin Overshoot loaders, the new screen attachment allows digging, screening and loading of pit-run gravel to proceed in one operation, the manufacturer states. Gravel is ready for spreading without further screening. —Austin Div., Central Ohio Steel Products Co., Galion, Ohio.



### Rotary Shear

The Toolmaster, a new, rotary shear, will cut steel (other than stainless) to 16 gage without undue effort and will handle even heavier aluminum, or brass. Maximum width of cut, 2 in. —Fidelity Tool Co., 309 Vine St., Camden, N. J.



### New Caterpillar D8 Tractor

A new, more efficient D8 tractor has been announced. Available in two models, a torque converter (Series D) and a direct-drive (Series E) model, the D8 promises to be more versatile than ever before.

With a three-stage 5:1 torque

converter, the series D has speeds up to 7.4 mph through a constant mesh transmission with three speeds forward and three speeds in reverse. The D series offers more than 50,000 lb of draw-bar pull.

(Continued on page 196)

# BARCO RAMMERS



1. Cover More Area!
2. Tamp a Heavier Lift of Dirt!
3. Get Better Compaction!

*Says* J. A. Tobin Construction Co.  
Kansas City, Mo.

- SELF-CONTAINED
- PORTABLE
- ONE MAN OPERATION
- FASTER COMPACTION
- BETTER COMPACTION
- LOWER INITIAL COST
- LOW OPERATING COST
- EASY TO USE, SAFE!



"*EVERYBODY* seems to be turning to Barco Rammers; our company certainly is," states George Pennington, Warehouse Foreman, of J. A. Tobin Construction Co., Kansas City, Mo. "The Barco machines cover more area, tamp a heavier lift of dirt, and get better compaction . . . Never heard a complaint on their operation in three years . . . They really do the work!"

Two of the Tobin Company's Rammers are shown in the above picture working on a fill over a culvert on Highway 69 near Kansas City. Other compaction being handled is around water mains and near ends of bridges. One of the most important advantages offered by Barco Rammers is helping contractors get jobs finished on time. **YOU CAN GET IMMEDIATE DELIVERY ON BARCO RAMMERS NOW — CALL OUR NEAREST DISTRIBUTOR TODAY OR WRITE.**

For Soil Compaction Close to Walls,  
Culverts and Abutments—in Trenches, Ditches

**BARCO** *Manufacturing Co.*  
512E Hough St.,  
Barrington, Illinois

# How Long Will a **PAYLOADER** Last?

**Model HM clocks  
over 18,000 hours**



WALT KEELER, Pres.  
Walt Keeler Company, Inc.

He says, "... these machines have given us a more economical performance than the track-laying tractors, due to the abrasiveness of the sand and gravel they are subjected to. Furthermore, rubber-tired tractors are faster, which is also an asset to our operation."



**W**ALT KEELER has used a fleet of tractor shovels for many years on his sand, gravel and ready-mix operations at Wichita, Kansas.

He bought his first "PAYLOADER" tractor shovel, a four-wheel-drive model, in 1949 and added two more later. Last December he traded in the oldest on a new one. This old 1949 unit had clocked over 18,000 hours of use — nearly twice what is considered normal for construction equipment — and was still in fair condition. Needless to say, Mr. Keeler is sold on "PAYLOADER" tractor shovels.

This factual report is not intended to create the impression that every "PAYLOADER" will give every owner 18,000 hours of satisfactory service. But it is an example of what proven "PAYLOADER" design, plus "PAYLOADER" Distributor service and intelligent preventive maintenance by the owner can accomplish.



**THE FRANK G. HOUGH CO.**  
200 S. Main St., Chicago, Ill.

Send catalog covering all seven "PAYLOADER" MODELS AND the many useful attachments for them.

Name .....

Title .....

Company .....

Street or Box No. ....

City ..... State .....

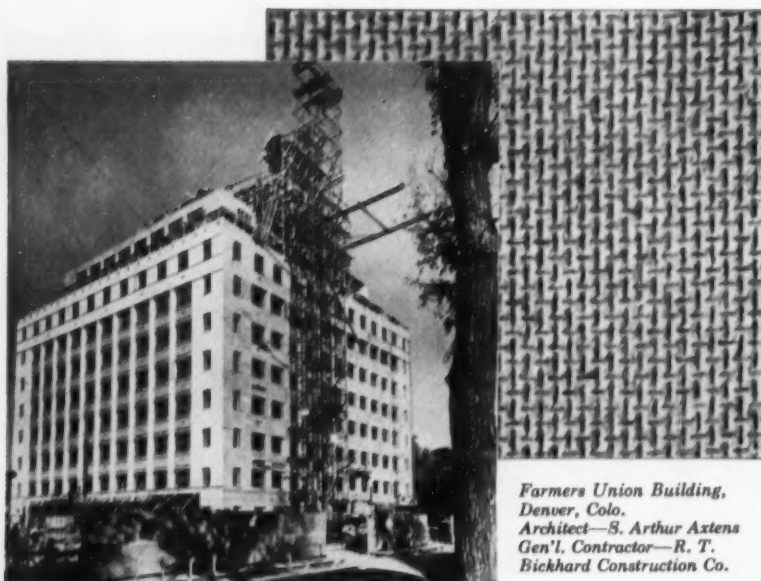


**PAYLOADER**

MANUFACTURED BY  
**THE FRANK G. HOUGH CO. • LIBERTYVILLE, ILL.**  
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY







Farmers Union Building,  
Denver, Colo.  
Architect—S. Arthur Axtens  
Gen'l. Contractor—R. T.  
Bickhard Construction Co.

Results like this from screen side of...

## MASONITE *Concrete Form* PRESWOOD

Described as one of America's first "atomproof" buildings this sturdy, ten-story structure's handsome exterior was made of concrete poured against the screen side of Masonite® Concrete Form Presdwood. When the forms were stripped, the even-textured surface needed only a minimum of labor to get ready for painting.

It's like that everywhere these strong, tough panels are used. Easy to work with... come in handy 4' x 8' and 4' x 12' sizes. And they can be used again and again.

### Cut Costs 3 Ways!

1. Screen side to concrete—for unpainted surfaces. Tiny projections left in concrete cut hand-rubbing costs up to 50%.
2. Smooth side to concrete—for painted or unpainted surfaces. Rubbing virtually eliminated. No knots, grain or blemishes in Presdwood to mar the finished surface.
3. Screen side to concrete—for painted surfaces. The textured surface left in the concrete forms an excellent bond for paint. Only minimum rubbing required.

Look For This Man—He



Makes The Difference

## MASONITE CORPORATION

MANUFACTURER OF PRESWOOD® PANEL PRODUCTS

MASONITE CORPORATION  
Dept. CME-4, Box 777, Chicago 90, Ill.

Please send me a sample of Concrete Form Presdwood and your free booklet.

Name.....

Firm.....

Address.....

Town.....Zone.....

County.....State.....

"Masonite" signifies that Masonite Corporation is the source of the product

## EQUIPMENT NEWS...

Continued from page 193

The E series has a rated drawbar pull of 39,150 lb, with speeds ranging from 1.5 to 5.2, with the standard transmission, and speeds as high as 7.2 mph, with an optional transmission.

A newly designed engine boosts the horsepower to 191 at 1,200 rpm from 185. The drawbar hp is now 155.

A new feature of this engine is a live shaft drive, independent of the flywheel clutch, which provides constant power for rear-mounted cable controls and steering clutch booster pump drive.

Other new features are: (1) New fuel injection system with capsule-type injection valves; (2) flanged center main bearing to take crankshaft thrust; (3) timing gear integral with crankshaft; (4) nearly all oil lines and valve push rod located within the engine, simplifying removal of the head; (5) larger capacity oil manifold to reduce restriction of flow from filter base; (6) new water pump and larger cylinder block water passages to handle greater capacity.

Among other important new features are an arrangement by which the operator can start the tractor from the seat. The seat has been raised 6 in., and a streamlined hood designed whereby the operator has clear visibility of the track and/or the bulldozer on both sides of the tractor.

The front idler yokes have been redesigned to include split-arm construction, and the recoil spring has been increased in size and now provides an assembled load of 38,000 lb.

The new D8 has seven roller track frames for improved flotation traction and stability. This track arrangement increases the number of track shoes on each side from 39 to 42, giving a length of 112 in. of track on the ground.—Caterpillar Tractor Co., Peoria, Ill.

**PLASTIC CABLE**—High mechanical and impact strength, excellent flex life, imperviousness to water, high resistance to solvents and thermal stability over a temperature range from minus 70 to plus 300 deg. F. are qualities claimed by the manufacturer for DuPont's Mylar cable. The cable may be spliced the same as regular fiber rope and may be cut with the hot-knife method. Available in all standard rope sizes.—Reynolds Industries, 4500 Euclid Ave., Cleveland, Ohio.

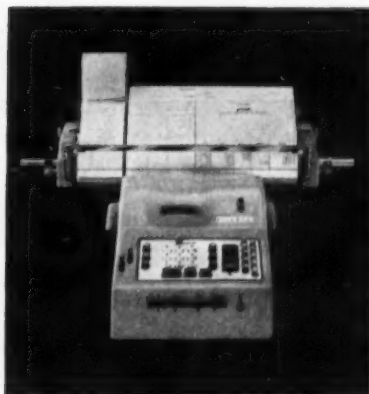
**to builders and building suppliers:**



*The Olivetti Printing Calculator cuts overhead costs by making all figure-work quick, easy, and automatic. The printed tape record can be quickly verified for accurate entry; attached to invoices, pay-rolls, lumber tallies and other papers; filed; shown to suppliers and customers. Multiplication and division are completely and uniquely automatic. Costs less than, but does the work of, 2 separate machines: a calculator and a fast 10-key adding machine with direct subtraction.*



**these calculators can help cut your overhead**



*The Olivetti Automatic Carriage Printing Calculator provides mechanized bookkeeping. It automatically calculates, and prints desired figures on record-forms, automatically moving to the proper columns. It can perform 21 separate operations automatically, in desired sequence; the sequence can be quickly changed. Its platen splits to take a 3-inch tape; it then operates exactly like the Olivetti Printing Calculator (above).*

**olivetti**

The Olivetti Printing Calculator, proved thoroughly dependable in 7 years of commercial use, has a lower cost maintenance contract than any comparable machine. More than 20,000 are on the job in the United States today. They are sold and serviced by 450 Olivetti dealers in every state of the Union, and by Olivetti branch offices; immediate delivery. No spare part is ever more than 24 hours away from any Olivetti dealer. Some of America's great corporations have specified "Olivetti". Why don't you investigate work-saving Olivetti machines? Send the coupon.



OLIVETTI CORPORATION OF AMERICA  
Dept. DQ  
580 Fifth Avenue  
New York 36, New York

Gentlemen: I'd like to know more about the Olivetti Printing Calculator ( ), the Olivetti Automatic Carriage Printing Calculator ( ), and how they can help cut my overhead. Without obligating me in any way, please let me have this information as soon as possible.

Name.....  
Title.....  
Company.....  
Street.....  
City..... State.....

## Trucks ... Wheel-Horse of the Construction Team

Trucks in construction are more than work-horses. They are transportation, working platforms for men, materials and for other construction equipment. Many machines lie idle in a contractor's yard until the right job comes along. But trucks are always on the move. The attachments below can make them even more versatile.



### Truck-Mounted Power Digger

This lightweight post-hole digger adapted to most light and medium trucks is designed for easy one-man digging. Controlled by a built-in hand clutch, it also has a slip clutch for extra operating safe-

ty. Holes up to 40 in. in depth and 10 in. in dia can be quickly bored, vertically or at any angle any place within a 4x8-ft area, without re-spotting the truck.—**H. S. Watson Co., 1316-67 St., Emeryville, Calif.**



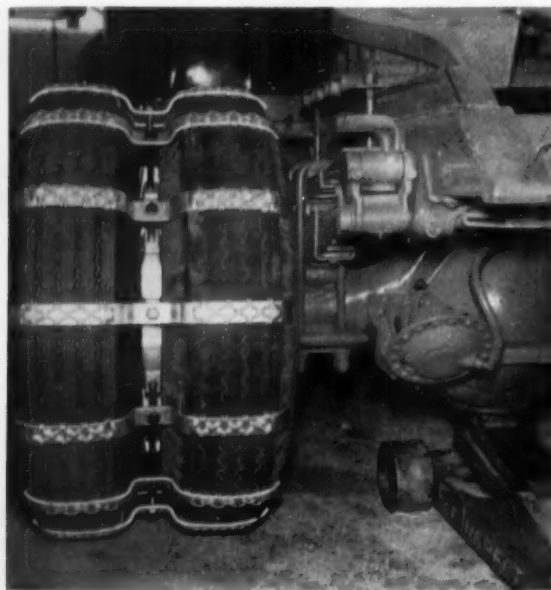
### Electric Hoist

The model 1000 Electric Hoist-O-Matic crane, with a 4-ft boom, can handle 1,000-lb loads. Operable within an 8-ft radius by push-button control.—**Hoisters, Inc., 1913 Broadway, Kansas City, Mo.**



### Truck Tracks

An armed services' development apt to find favor among contractors are these tracks for attachment to trucks which have to work in hard going in mud, sand and snow. Fitting most tires, easy to mount, they are said to give up to 500% additional flotation.—**P&G Supply Company, 2262 N. Albina St., Portland 12, Oregon.**



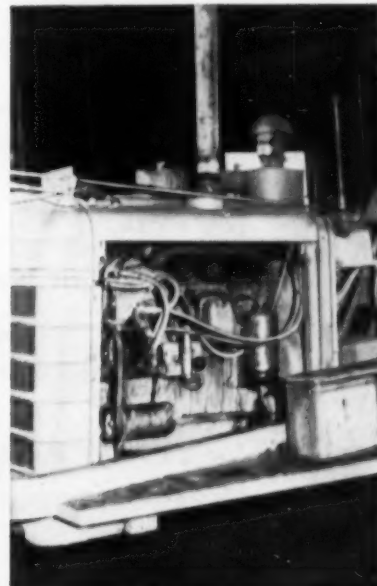
### Trac-Plates

Another device for improving truck performance on rough going is this spring steel traction assembly. Individually applied plates permit the use of as many assemblies as required by road conditions. The spring steel plates, which flex with the tires, provide vibrationless operation at normal speed.—**Tractioneer Co., 410 North Michigan Ave, Chicago, Ill.**

# The Engineer's Report

CASE HISTORY

LUBRICANT *RPM Delo Oils*  
FIRM *Dana Company, Inc.,  
Apple Valley, Calif.*



This paving machine diesel worked more than 2400 hours, laid 85 miles of asphalt highway before even the head was removed.

## No bearing, ring trouble in 6 years desert operation!

Sand, wind, dust and heat are tough on engines in the California desert where Dana Company, Inc., develops subdivisions, builds and paves streets and highways. But, using RPM DELO Lubricating Oils, not one engine lost a bearing or stuck a ring in 6 years. Even with constant dust conditions and rapid temperature changes—often from below freezing to 75°F. in a morning—they have no carbon and sludge problem. "RPM DELO Oils keep our engines very clean and cut repair costs," says Mr. Ross Dana, President. "One diesel in a paving machine laid 85 miles of asphalt, worked 2400 hours before it was touched. Then, only a valve grind was needed."

FREE FOLDER tells you about all the RPM DELO Oils and how they meet every heavy-duty engine condition. Write or ask for it today.

FOR MORE INFORMATION about petroleum products of any kind or the name of your distributor, write or call any of the companies listed below.



TRADEMARK "RPM DELO" REG. U.S. PAT. OFF.

### How RPM DELO Oils reduce wear, corrosion, oxidation in all Heavy-Duty Engines



- A. Contain special additives that provide metal-adhesion qualities...protect parts whether hot or cold, running or idle.
- B. Anti-oxidant resists deterioration of oil and formation of lacquer...prevents ring-sticking. Detergent keeps parts clean...helps prevent piston scuffing.
- C. Special compounds stop corrosion of any bearing metal and foaming in crankcase.

STANDARD OIL COMPANY OF CALIFORNIA, San Francisco 20 • STANDARD OIL COMPANY OF TEXAS, El Paso  
THE CALIFORNIA OIL COMPANY, Barber, New Jersey • THE CALIFORNIA COMPANY, Denver 1, Colorado



# UNIVERSAL FORM TIES

*a Complete Line  
From 1 Source*

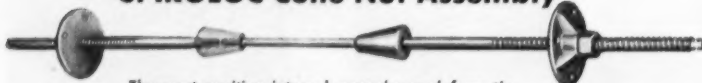
## SPIROLOC Form Ties

**Faster Erection . . . Positive Holding . . .  
Easier Stripping**



Available with  
nut washer

## SPIROLOC Cone Nut Assembly



The most positive internal spreader and form tie

- Greater tie strength for heavy construction
- Fewer ties per sq. ft. of form area. **LOWER MATERIAL and LABOR COSTS**
- Positive breakbacks
- Permanent, reuseable equipment
- **RENTED . . . SOLD**

## TWISTYES

## SNAP TIES

**Positive Spreader Ties for all types of Concrete Construction**



Combination wedge  
and bearing plate . . .  
easy application . . .  
won't twist or fall off  
—ample take-up.



- Low cost ties for job-built or prefabricated forms
- Used with or without walers
- Accurate breakback . . . minimum plug required
- Choice of Spreader Washer . . . 7/8" flat is standard
- Rugged Twistye and Snap Tie Clamps have extra bearing surface . . . additional safety factor



Curved ends speed in-  
stallation and stripping  
... long slope wedge  
for ample take-up.  
Extra nail holes permit  
nailing clamp in any  
position.

## FORM CLAMPS

**The Most Versatile Tie . . . At the Lowest Cost**



"Sure-Grip" principle  
means positive locking  
SAFE . . . SURE Tying

- 2 Form clamps and a mild steel rod make a tie to handle any condition
- Wide clamp base gives more bearing on waler . . . won't "bite" at maximum loads
- Notched base permits nailing to waler

Write for Catalogs describing Universal Concrete Accessories and  
UNI-FORM Panels—There's no obligation

# UNIVERSAL FORM CLAMP CO.

GENERAL OFFICES AND FACTORY: 1238 N. KOSTNER • CHICAGO 51, ILLINOIS

OFFICES AND WAREHOUSES:

CLEVELAND, OHIO, 24901 Lakeland Blvd. • BALTIMORE, MD., 1020 N. Kresson St. • HOUSTON, TEXAS, 2314 Preston Ave.

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DISTRIBUTORS IN PRINCIPAL CITIES

Service  
Wherever  
You Build . . . Coast to Coast





### Telescoping Boom Hydraulic Crane

The Hai hydraulic crane has a telescoping boom reaching 11 ft 8 in. at maximum extension and a lifting capacity of 1,125 to 2,250 lb, depending on boom length. Powered directly by the truck en-

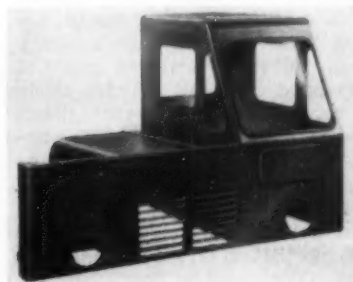
gine, it is operable by one man from either side of the truck body. Requires only 10 to 14 in. between truck cab and body for mounting. —Stedt Hydraulic Crane Co., 15 Boylston Pl., Brookline 46, Mass.



### New Chevrolet Trucks

The 1955 Chevrolet trucks feature compact design. Most wheel bases in new models have been reduced—some as much as 8 in. Also reduced are cab heights for

greater convenience in entering and leaving and reduced heights of hoods and engine montings for easier servicing.—Chevrolet Motor Div., General Motors Corp., Detroit, Mich.



### Allows Longer Loads

The Crenlo Model 4709AA cab, a heavy-duty unit that can be rapidly installed on any flat platform truck or tractor, allows longer loads of lumber or metal objects. Construction is of 16-gage sheet steel, structurally reinforced at all vital points.—Crenlo, Inc., Rochester, Minn.

## A REAL HELP GETTING PILING FROM FOSTER



"By servicing our Piling needs with *on-time* shipments, Foster enabled us to use two rigs and meet a fast production schedule. Foster furnished specified sections of Steel-Sheet Piling in the exact lengths—helped us complete driving, without interruption, and *on time*."



ARTHUR J. NICHOLSON, Vice President  
EQUIPMENT & SUPPLIES INC., Pittsburgh  
Pile Driving Sub-Contractors to:

THE H. K. FERGUSON COMPANY



### MELLON SQUARE GARAGE

Pittsburgh's new \$3.5 million, six level, underground parking facility.

Design and construction by:  
THE H. K. FERGUSON CO., Cleveland

### FOSTER RENTAL PILING

Contractors everywhere depend on L. B. Foster Company for exacting, prompt service on all sections and lengths of piling for every job.

You'll Save with Foster's Rental Plan that gives you a low, fixed expense—provides an extra advantage in bidding.

Write for Catalog CM-4



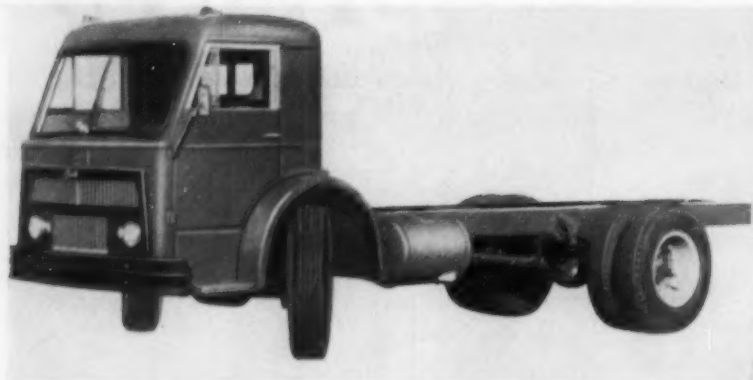
**FASTER**  
than FOSTER

PIPE FOR FOUNDATION PILE  
H-BEARING PILE  
H-S LIGHT-WEIGHT PILING

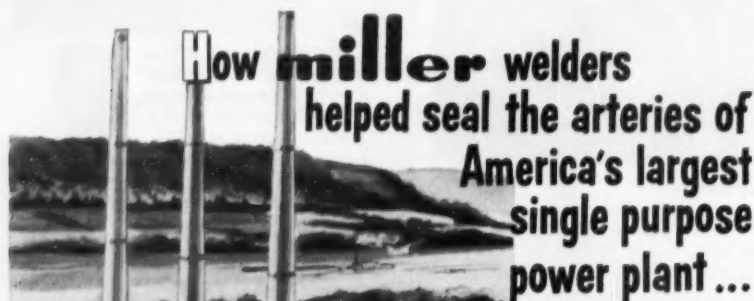
RAILS • TRACK EQUIPMENT • PIPE FABRICATION

**L.B. FOSTER CO.**

PITTSBURGH 30 • NEW YORK 7  
CHICAGO 4 • HOUSTON 2 • LOS ANGELES 5



**NEW MACK TRUCKS**—This company has started production of a radically new cab-over-engine truck series, designated as the Verti-Lift D Series. Built as trucks in sizes from 20,000 to 28,000-lb gross and as tractors in the 40,000 to 53,000-lb gross combination weight range, the outstanding feature of the "D" series is the Verti-Lift Cab providing maximum engine accessibility. The new cab is the shortest in its class. The spacious, yet compact three-man cab, is 12 in. shorter than any other cab-over engine now offered and up to 50 in. shorter than conventional types. Usual everyday maintenance is accomplished without raising the cab. With cab raised, a mechanic can reach all parts of the engine without having to move around axle and wheels. The standard engine in the D-20 models is the Mack Magnadyne 107 hp. The D-42 models produce 150 hp.—Mack Trucks, Inc., 350 Fifth Ave., New York 1, N. Y.



**How miller welders helped seal the arteries of America's largest single purpose power plant...**

Substantial monument to Free Enterprise is OVEC and IKEC, suppliers of electric power to the Atomic Energy Commission's new uranium diffusion center in Pike County, Ohio.

Ohio Valley Electric Corporation and its subsidiary, Indiana-Kentucky Electric Corporation, agreed to supply electric power to this great new atomic production center . . . 15 billion kilowatt-hours annually.

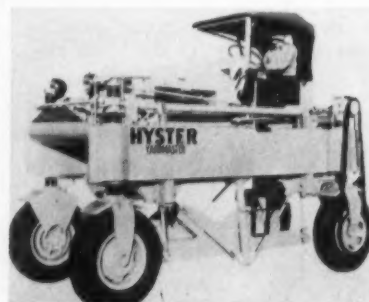
Two huge generating stations are being built: The Kyger Creek Plant at Cheshire, Ohio will have five generating units of 200,000 KW each; Madison, Indiana's Clifty Creek plant will produce 1,200,000 KW with its six big generators. Each of the eleven turbo-generating units will operate off a single boiler, with super-heated steam reaching 1,050 degrees Fahrenheit under 2,000 lbs. pressure per square inch! The high temperatures and reheat, which the sponsor companies have pioneered in their own right, will make these two plants among the most economical, most efficient generating stations in the country.

These same elements, however, make the fabrication of faultless high-pressure steam lines vital . . . and extremely difficult. To accomplish this extremely important task, pipe welding specialists equipped with the maximum of engineering skill utilized the Miller Selenium Rectifier d-c Arc Welder.

"... if it's Miller, you know it's the finest!"



Miller Selenium Rectifier d-c Arc Welder, in four wide-range models. For complete, concise, worthwhile information on these and other Miller Arc and Spot Welders, contact us today . . . at no obligation, of course.



**STRADDLE TRUCK** — A versatile new unit, Model MD, with a 20,000-lb capacity has been announced by the Hyster Co. With a Hercules JXE-3 "L" 91-hp engine it features a 12-in. clutch, vacuum power brakes and hypoid differential. Additional features are a positively controlled swing mechanism, new load shoes, link rods, and an electric fuel gage. Package sizes are a new maximum height of 78 in. and a width of 76 in.—Hyster Co., Portland 8, Ore.

**LATEST IN THE GMC LINE**—GMC's "Blue Chip" series of 128 new truck models has recently been released. Featured are the expanded use of Hydra-Matic transmissions, lighter weight diesel trucks, and a unique dual-purpose series, combining the advantages of cab-over-engine and conventional models. V-8 engines are available in two models—155 and 175 hp. Six cylinder gasoline en—  
(Continued on page 208)

**miller** ELECTRIC MANUFACTURING COMPANY, INC.  
APPLETON, WISCONSIN

Distributed in Canada by Canadian Liquid Air Co., Ltd., Montreal, P.Q.



## Field Assembly of Aeroquip Hose Lines Cuts Downtime for Wm. J. Muehlenbeck



With a small supply of Aeroquip hose and fittings in the service truck, Mechanic Cliff Scarborough can make new hose lines right in the field.



This Aeroquip **SOCKETLESS** replacement line was made in a matter of minutes with no tools except a pocket knife for cutting the hose.

Wm. J. Muehlenbeck of Saginaw, Michigan keeps a mixed fleet of earthmovers, scrapers and graders on the job with a minimum of downtime. Broken hose lines are replaced, on all makes of equipment, with new Aeroquip assemblies made *right in the field!* Aeroquip wire braid hose and reusable fittings fill the bill for all hydraulic and heavy-duty lines. For fuel, oil and air lines, Cliff Scarborough, Muehlenbeck mechanic likes Aeroquip's new **SOCKETLESS** fittings and hose that assemble extra fast by just pushing the hose on the fittings. You'll save time, too, by replacing broken hose lines right on the spot. Get the complete story from your distributor, or write us.



**JUST PUSH THE HOSE ON IT STAYS ON**  
PATENT APPLIED FOR

 **Aeroquip**  
REG. TRADEMARK

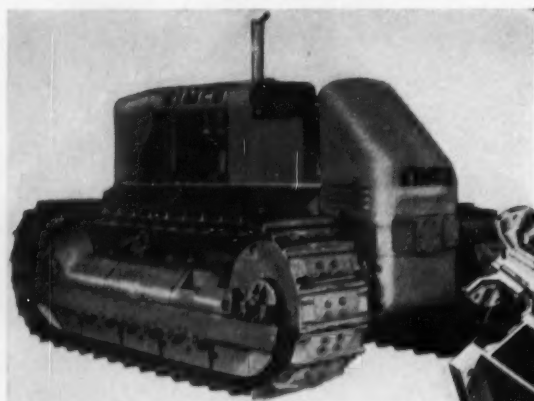
**AEROQUIP CORPORATION, JACKSON, MICHIGAN**

LOCAL REPRESENTATIVES IN PRINCIPAL CITIES IN U.S.A. AND ABROAD • AEROQUIP PRODUCTS ARE FULLY PROTECTED BY PATENTS IN U.S.A. AND ABROAD

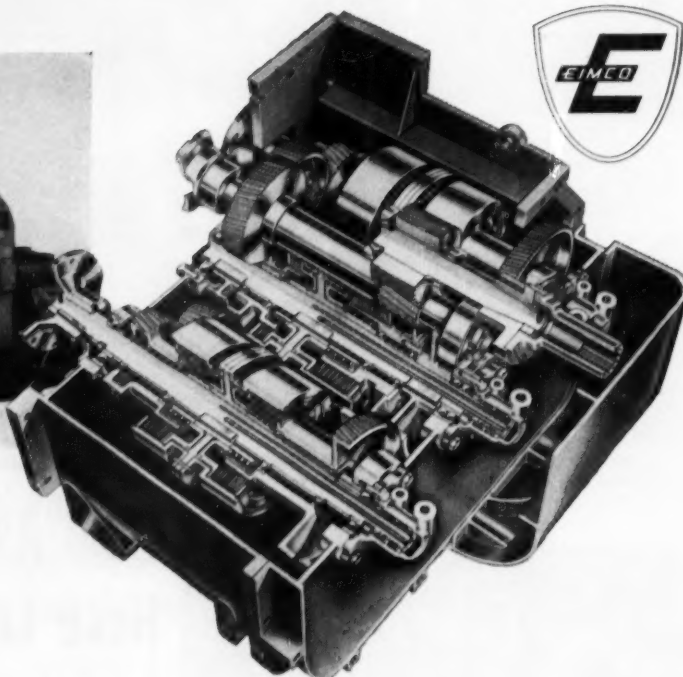


EIMCO TRACTOR

4th in a Series



Eimco's Unidrive Transmission. A compact unit containing all necessary gearing and clutches for speed changing, steering and independent reversal of either track.



## The Eimco Transmission Revolutionizes Tractor Design!

"I've run 'em all—and look, boys, with this Eimco tractor I can move more dirt with half the work."

So says a user who has had years of experience in running practically every known make of conventional tractor.

For the first time, the operator can see where he is going and what he is doing. Now, controls are so simple and easy that the

operator can accurately maneuver this big machine with one hand. The Eimco Tractor responds instantly, without operator effort, for maximum safety.

Here, at last, is a tractor that has independent reversal of each track for spin turns — made possible by a revolutionary new transmission that allows speed changes or reversal in motion, gears that cannot

clash, clutches that never need adjustment.

Two views are shown of the types of transmissions now in use in conventional tractors. These two views are typical of all transmissions in previous crawler tractors in use today.

Here are the facts set down in a comparative tabulation, feature by feature, and here is why the Eimco is better for you—

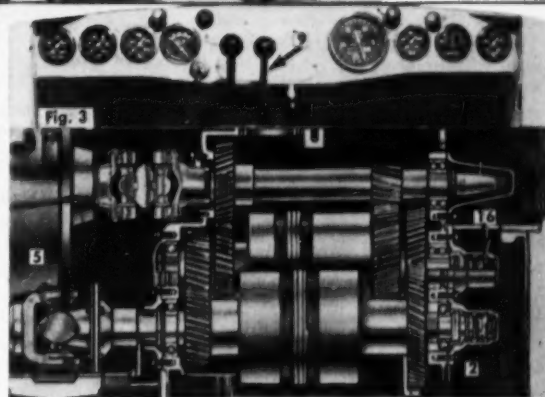
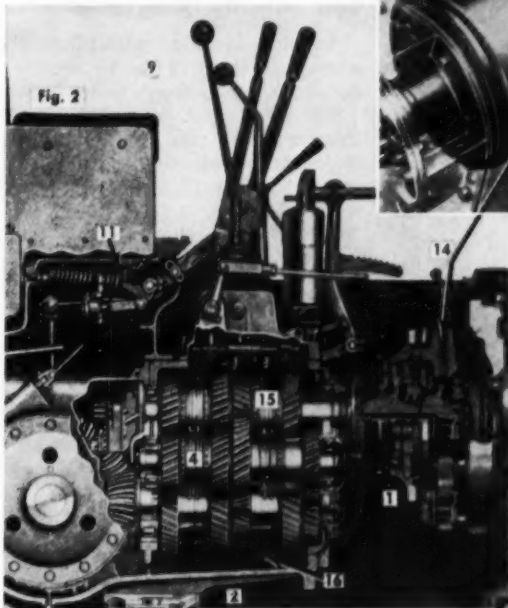
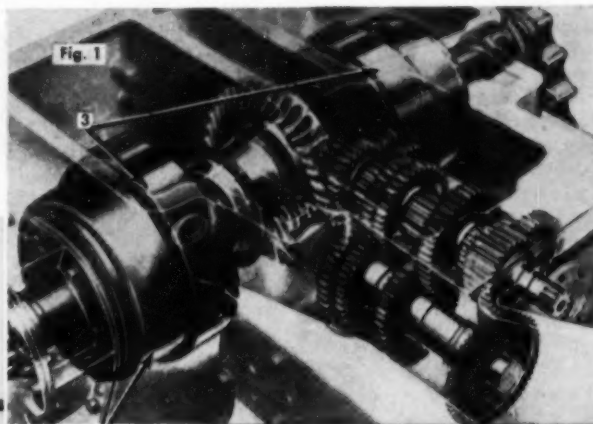
The Eimco tractor with bulldozer.



The Eimco tractor with loader.



Fig. 1 shows conventional transmission with steering clutch drums and brakes in final drive assembly. Fig. 2 shows side elevation of conventional transmission with operating handles, master clutch and transmission speed changing gears. Fig. 3 shows Eimco transmission with instrument panel showing simple easy handle arrangement.



#### CONVENTIONAL TRANSMISSION

1. Master clutch, some wet, some dry.
2. Gear box.
3. Steering clutches and brakes in final drive assembly.
4. Various speeds forward and reverse—a total of 7 or 8 different sets of speed gears.
5. Direct drive transmission requires operator to select proper gear before starting.
6. Stop to shift, stop to reverse.
7. Gearing reverses when gears shifted to reverse.
8. Skillful shifting necessary to change gearing without clashing.
9. Numerous handles necessary to operate tractor.
10. Shifting mechanical, unskilled operator can burn up clutches.
11. Shifting assisted by springs, plungers, pistons, gadgets.
12. Must slip clutches to start tractor or hold on a slope.
13. Must use brakes to effect turns.
14. Frequent clutch adjustments necessary.
15. Transmission overhaul is major operation.
16. Splash lubrication.
17. All clutch plates dry — except master clutch on some available wet.
18. Toothed gear-type clutches in transmission.

#### EIMCO TRANSMISSION

1. None (No master clutch troubles).
2. Complete transmission in one case.
3. No clutches, brakes, shifters or levers in final drive assemblies.
4. Two speeds forward and two reverse—the torque converter does the rest.
5. Engine torque converter drive adjusts speeds at any gear selection from zero to full speed, according to the load.
6. Shift in motion — under load, forward or reverse.
7. Gearing always travels in same direction, with tractor going forward or reverse.
8. Shift anytime, anyway — impossible to clash gears because they are always in mesh.
9. Two small handles control all movements of tractor.
10. All shifting hydraulic, operator cannot damage clutches.
11. Not necessary to have assistance on fingertip controls.
12. Starting and holding tractor controlled by throttle and torque converter.
13. Not necessary to use brakes for any maneuver.
14. No clutch adjustments necessary — or possible — ever.
15. Transmission easily removed for overhaul without disturbing any other assembly.
16. Pressure lubrication.
17. All clutch plates wet.
18. Wet clutch plates throughout transmission.

# THE EIMCO TRANSMISSION—HOW IT WORKS

The Eimco Unidrive Transmission is actuated by two small steering levers and a speed range selector. The handles all have three positions—the steering levers have Forward, Neutral and Reverse and the speed selector has Low, Neutral and High.

Any lever may be moved to any position from any other position at any time; i.e., both tracks may be thrown immediately into reverse while traveling forward at full speed or the speed selector may be moved from High to Low position, or Low to High. All parts of the Eimco Tractor are built to take these unusual maneuvers without strain or damage.

Sudden moves or direction changes are necessary for operator safety and operating advantages on the job. For instance, picking up speed on a load that has to be started in low gear—or instant reversal on a bulldozer that works too close to a face in grading.

The manipulation of these short levers transmits motion directly to a hydraulic valve and from that point on, all work is done by a low pressure (150 psi) hydraulic system.

The rifle drilled ports in each shaft includes individual pressure lines to each of the two pistons on

each shaft and a separate line for pressure lubrication to pistons, clutch plates and bearings. The lubrication line is a separate low pressure system of approximately 20 psi which has been cooled and filtered from a portion of the oil supplied from the reservoir through the main supply pump.

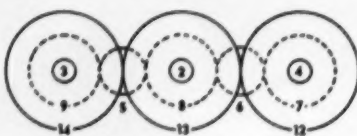


Fig. 4

Illustrations A through D show shafts in the above arrangement with the power input shaft eliminated.

Illustration A shows all handles in Neutral. The engine drives input shaft #1 (which is omitted from this sketch because of its position and the fact that it runs constantly while the engine is running), and motion is transmitted to gears 10 and 11 which run free on shaft 2. Note: None of the shafts shown are turning.

Illustration B shows the two steering handles in forward position and the speed selection lever in low.

When either speed position is selected all gearing in the transmission is in motion. When locomotion clutches are engaged the output shafts turn, transmitting power to their respective final drives.

In this illustration with LO clutch engaged, shaft 2 is in motion; power flow is through gears 8 and 13 at low speed. With FL and FR (forward left and forward right) clutches engaged the drive is through gears 12 to the left track and 5 and 9 to the right track. Shafts turn as shown to produce forward motion.

Illustration C shows both steering handles in reverse and the speed selection handle in high. Power flow is now through 8, 6 and 7 to the left output shaft and 13 and 14 to the right shaft turning both shafts as shown to produce reverse motion.

Illustration D shows the left steering handle in forward and the right steering handle in reverse with the speed selector in low position to produce a spin turn to the right. Power flow is through gear 13 to 12 and 14 which turns the shafts in the same direction for spin turns. Spin turns can be made in either speed position.

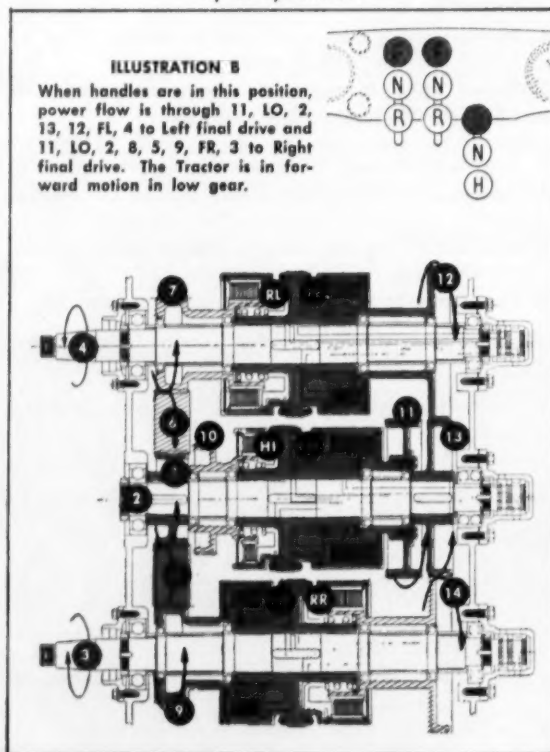
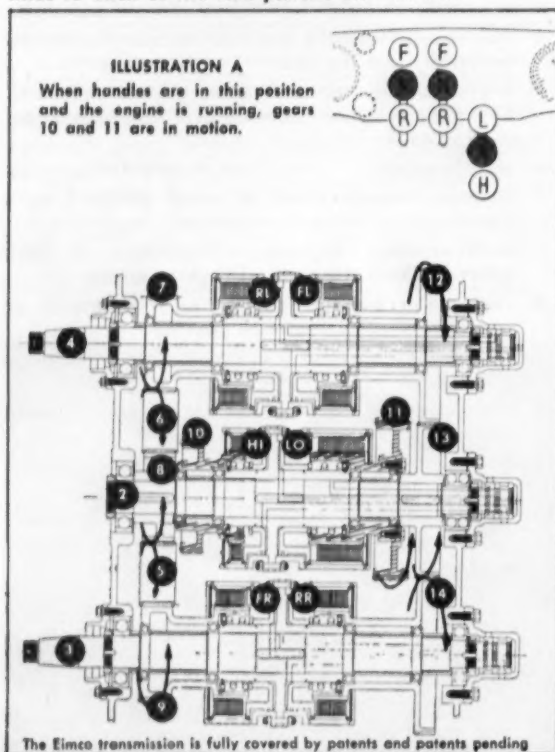




ILLUSTRATION C

When handles are in this position, power flow is through 10, HI, 2, 8, 6, 7, RL, 4 to the left final drive and 10, HI, 2, 13, 14, RR, 3 to the right final drive. The Tractor is in reverse motion in high gear.

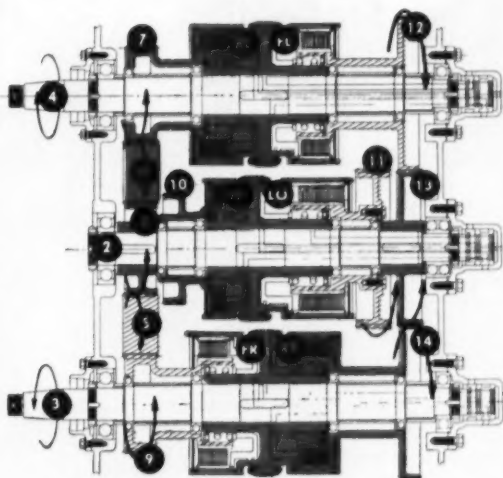
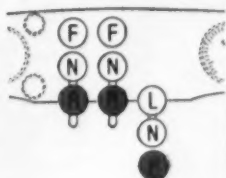
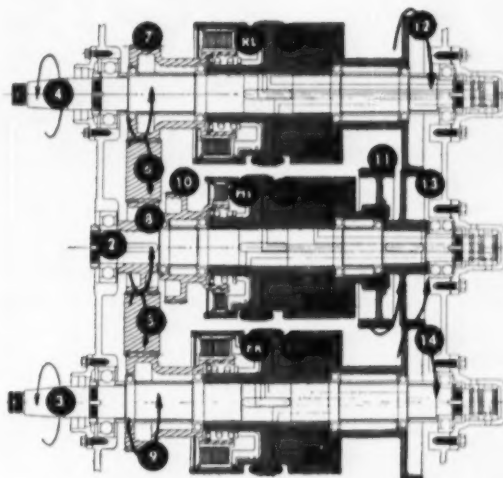
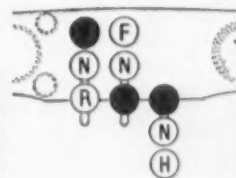


ILLUSTRATION D

When handles are in this position, power flow is through 11, LO, 2, 13, 12, FL, 4 to the left final drive and 11, LO, 2, 13, 14, RR, 3 to the right final drive. The Tractor does a spin turn to the right in low gear.



Note that the gears maintain their direction of rotation in all possible combinations of handle positions. This is an important advantage in the long life of the Eimco Transmission. No other tractor transmission makes all speed changes, reverses and turns the tractor without changing direction of rotation of the gears in the transmission.

Changing shaft direction without changing gear direction is accomplished by actuating clutches that drive to opposite ends of the output shafts. Since the gearing on one end of the shaft turns clockwise and on the other end counter-clockwise, the gearing maintains its original direction of rotation and the shafts change direction for reversal.

This remarkable transmission never needs to be opened for adjustment of any clutch—all wear is compensated in the hydraulic pistons. The entire shaft and gear assembly is bathed in cooled oil with the added precaution of circulated lubricating oil under pressure to all parts.

## HERE'S THE PROOF

Eimco Tractors are the finest tractors modern engineering can produce. The Eimco Transmission is only one part of this remarkable tractor built to do the rough, tough jobs with ease—built to stand up under the pace of heavy contracting in rock or other difficult material—month after month, without down time for repairs.

A contractor handling the removal of slag from the open hearth furnace slag pockets of one of the country's newest and largest steel plants, after trying to use a number

of conventional tractor loaders which could not take the gaff, tried an Eimco 105. Here is the job—enter the slag pockets of an open hearth furnace when it goes down for repair, even while the slag is still hot, break up the slag, load it and convey it to railroad gondola cars, the kind of work that only an Eimco is built to take. The bucket lip is forced into or under the slag, the entire machine practically stands on its front idlers while the operator raises and drops the rear

end of the machine to give it a crowbar action; molten slag chunks weighing as much as six or seven tons are easily picked up and loaded. Day in and day out the Eimco 105 was called on to handle the toughest slag removal jobs in the plant—conventional tractors had fallen apart in a few days, but the Eimco earned for itself a phone call from the contractor, "We're going to use your machine on every steel mill job we've got—enter our order for four more Eimco 105's."



## THE EIMCO CORPORATION

Salt Lake City, Utah—U.S.A. • Export Offices: Eimco Bldg., 52 South St., New York City

New York, N. Y. Chicago, Ill. San Francisco, Calif. El Paso, Texas Birmingham, Ala. Duluth, Minn. Kellogg, Ida. Baltimore, Md. Pittsburgh, Pa. Pasadena, Calif. Houston, Texas London, England Gateshead, England Paris, France Milan, Italy Johannesburg, South Africa

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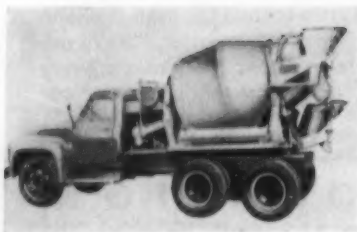
gines are available in a number of increased power models, 130, 140, 155, 170, 190 and 225. It is not anticipated that the white-wall tires featured above will be-

come standard equipment on contractor purchases at this time.—**GMC TRUCK & COACH DIV., General Motors Corp., 660 S. Boulevard, East, Pontiac 11, Mich.**

## Concrete



**CONCRETE GUN** — A new portable rig for concrete and masonry restoration, waterproofing, acid-proofing, stuccoing, insulating, fire-proofing, sand-blasting and the application of refractories proportions, mixes and guns concrete and other cementitious materials. This equipment is available in five models with capacities from  $\frac{3}{4}$  to 6 yd per hr.—**Air Placement Equipment Co., 1011 W. 24th St., Kansas City, Mo.**

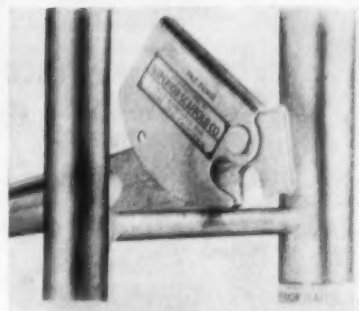


**TRUCK MIXER**—A new  $3\frac{1}{2}$ -yd mixer just placed on the market has

a 4-cyl engine and three-speed Warner transmission which gives a wide range of forward and reverse drum speeds from  $1\frac{1}{2}$  to 16 rpm within economical engine speeds of 800 to 1,600 rpm. It has single lever drum control, and its 25% larger discharge blades assure faster discharge of low slump concrete. Standard equipment includes full-length mud-guards, wash-off hose, three-piece 13-ft chute, fuel tank and hopper-inspection platform.—**Jaeger Machine Co., Columbus 16, Ohio.**

**MANHOLE FORMS**—An octagonal manhole form for pouring concrete manholes consists of a magnesium frame, with panels of plastic-faced plywood which have no tie openings, but are cross-braced for strength and held together by connecting bolts and wedges.—**Symons Clamp & Mfg. Co., 4249 Diversey Ave, Chicago, Ill.**

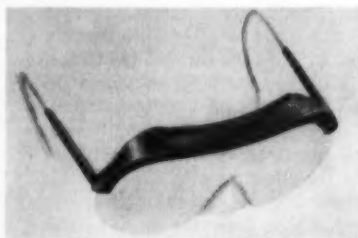
## Scaffolding



**AUTO-LOCK**—The new Auto Lock tubular steel scaffolding requires no wing nut, set screws or small parts of any type. To lock, press the Auto-Lock head against the adjoining bar; the head opens automatically and snaps shut to a fast, safe grip. Unlocks by the flip of a thumb.—**Superior Steel Scaffold Co., 5624 Bankfield Ave., Culver City, Cal.**

**NEW LOCK**—A vise-lock which by use of a clamp rather than by slipping the member on a threaded stud eliminates thread stripping and lost wing nuts is interchangeable with any other type of steel scaffolding on the market, and requires no special tool for installation.—**The Marvel Equipment Co., Oshkosh, Wis.**

## Safety



**LIGHTWEIGHT SPECTACLES**—New FeatherSpecs (Style FW3) provide ample protection for light grinding, woodworking, spot-welding, inspection and other jobs that do not require the use of heavy-duty goggles. Distortion-free lenses are .040 in. thick acetate, clear or green and can be removed quickly and easily.—**Willson Products, Inc., Reading, Pa.**



# Stop Effects of SHOCK!

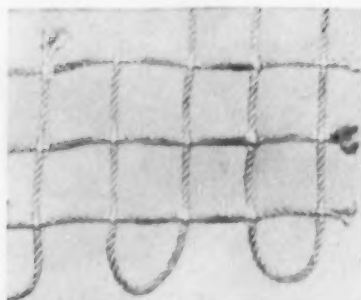
Sinclair HEAVY DUTY BEARING GREASE is a greatly improved lubricant for bearings in power shovels, drag lines, tipples, conveyors and similar heavy duty equipment. It cuts wear by resisting shock, heavy loads, heat and pounding. It stays put — successfully lubricates large, loose-fitting bearings.

Sinclair GEAR PROTECTIVE COMPOUND provides a new high standard in exposed gear lubrication. Extreme pressure additives carry heavier loads — protect against wear. Moreover, this compound stays put, resists throw-off, squeeze-out or peeling.

Sinclair JET LUBRICANT #20 can prolong the working life of your turntables, rollers and roller rails. It is an all-season lubricant that resists squeeze-out — protects costly parts against shock and heavy, constant loads.

A Sinclair Lubrication Engineer can give you expert counsel on how you can get the most out of these cost cutting, time saving lubricants. Phone your local Sinclair Representative or write Sinclair Refining Company, 600 Fifth Avenue, New York 20, New York.

## SINCLAIR LUBRICANTS

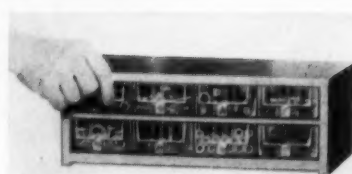


**LIFE NETS**—Constructed of  $\frac{3}{4}$ -in. water-repellent and mildew proof, extra superior manila rope, with a

breaking strength of 1,350 lb., the nets are manufactured in 4-, 6-, 8-, or 12-in. squares, with border lines of  $\frac{3}{4}$ -in. manila rope. The junctions are strengthened with fireproof and waterproof L&S intersectional metal clamps.—**E. D. Bullard Co.**, 275 Eighth St., San Francisco 3, Calif.

## Miscellaneous

**PARTS CABINET**—A sturdy steel cabinet with eight clear See-Thru drawers, enables the user to spot at a glance, the drawer in which the desired parts are stored. Adjustable



crosswise and lengthwise dividers make it possible to set up various sized compartments in the drawers which are  $5\frac{1}{2}$  in. long by  $2\frac{3}{4}$  in. wide by  $1\frac{7}{16}$  in. deep. Slots are provided in the drawer fronts for labels, if desired. Price, \$4.25 postpaid.—**General Industrial Co.**, 5738 N. Elston Ave., Chicago, Ill.

## Main Runway of Rome (Italy) Airport Completely Resurfaced in Record Time

with the



**MOTO-PAVER**



### Runway in daily use while being resurfaced

● An unusually difficult construction job was completed in record time recently when the main runway of the Ciampino Airport at Rome, Italy, was completely resurfaced in two weeks with a single Moto-Paver. The runway measured 60 meters wide and 400 meters long, which meant resurfacing 24,000 square meters. What made the job especially hard was the fact that the runway was in daily use at the time, and could be worked on only three hours each day. The Moto-Paver laid a strip 3.1 meters wide, at a rate of 100 tons per hour. 4,000 square meters were laid every three hours. The material was rolled two hours after it was put down. On the following day it was rolled for a final setting. Asphalt used on the project was a RC-3 specification, and the aggregate was a dense graded siliceous chipping mix.

This is just another example of how the H&B Moto-Paver—in all parts of the world and under all kinds of conditions—is speeding the resurfacing job, and cutting the cost.

*New Bulletin MP-55 will be sent on request.*

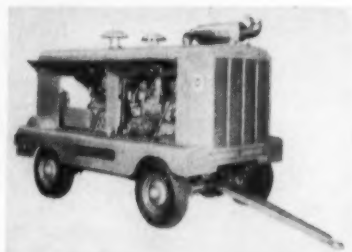
**HETHERINGTON & BERNER INC.**

ENGINEERS . . . MANUFACTURERS

735 KENTUCKY AVENUE

INDIANAPOLIS 7, INDIANA

**ANTI-RUST PAINT** — Rust-Cure XX, made of doubly pigmented aluminum mixed with a colorless base vehicle, is said to do away with bleeding commonly associated with bituminous base aluminum paints. Suitable for indoor and outdoor use, and adapted to roller application, it can be applied without wire brushing, scraping or sandblasting. Applied to rusty surfaces, it forms a seal against further rust action.—**Monroe Co., Inc.**, 10703 Quebec Ave., Cleveland 6, Ohio.



**AIR COMPRESSOR** — An all-new 600-cfm rotary portable air compressor, the Gardner-Denver 600, has just been announced. Reportedly exclusive features provide reliable operation under weather conditions ranging from 40 deg. below zero to 115 deg. above. Water circulation is fully automatic, and a hydroshift clutch is provided between the engine and compressor so that the compressor load may be discharged for easier engine starting during cold weather. The compressor oil system functions independent of oil pressure. A special unit prevents oil contamination from moisture condensation. The machine is equipped with an automatic speed control. Engineered for simple maintenance in the field, all compressor vanes can be removed by regular mechanics in less than an hour. Weight is 8,700 lb.; power unit a General Motors diesel, Model 6-71, with electric starting system. — **Gardner-Denver Co.**, Quincy, Ill.



ROSCOE CONNOLLY, PRESIDENT  
CONNOLLY CONSTRUCTION CO., MARYSVILLE, OHIO

## **"K-45 Kompactor saves us up to 60% of normal compaction costs!"**

**estimates Ohio contractor who has operated his Kompactor since 1954**

This field performance report on Buffalo-Springfield's revolutionary, high-speed K-45 Kompactor comes from Roscoe "Dutch" Connolly, president of the Connolly Construction Co., Marysville, Ohio.

"Our K-45 Kompactor has been in almost continuous use since early spring of 1954," says Mr. Connolly. "In our opinion, it is the best compaction machine available today. *It not only exceeds specified density requirements, but we estimate it saves up to 60 percent of normal compaction costs, because it takes far less working time to meet required densities, and leaves a smooth-finished surface that prevents moisture from penetrating the material after the rolling is finished.*"

Mr. Connolly also appreciates the fact that the Kompactor is self-propelled, "and thereby requires much less total investment to handle compaction operations.

"We also like the Kompactor because we can work right *up close* to building foundations and bridge abutments, thereby eliminating at least 90 percent of the hand tamping work usually required on such jobs. And finally, we're sold on the K-45 because of its extremely low main-

tenance cost in comparison to other types of compaction equipment."

Have *you* seen a K-45 Kompactor in action? If not, you've missed an eye-opening experience. Check with your nearest Buffalo-Springfield distributor today for all the facts on this amazing machine that can literally *halve* your job compaction time and costs. Or send for free brochure that illustrates and describes the K-45 and what it can do for you.

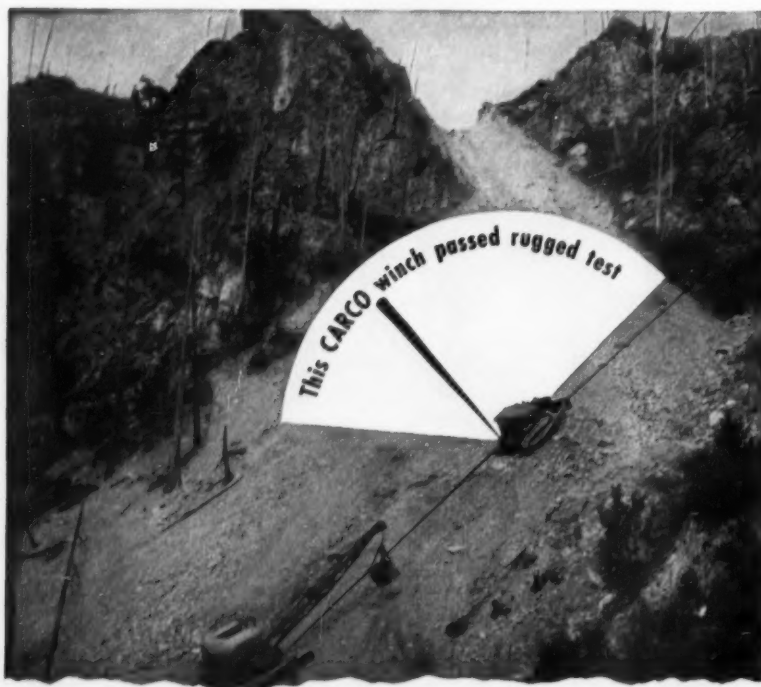
**BUFFALO**  
ROLLER COMPANY



**SPRINGFIELD**  
SPRINGFIELD, OHIO, U. S. A.

THE LEADER IN COMPACTION EQUIPMENT DESIGN AND MANUFACTURE





## CARCO winches held fast when slippage meant disaster

... on tough Alberta to Vancouver pipeline job



Towing and holding heavy equipment on steep grades is a severe test of a winch brake. On the Model J Carco winch, the automatic, self-energizing brake will hold any load the winch can pull. It takes hold the instant tractor clutch is disengaged. Full braking power comes from high ratio leverage contracting the band on brake drum. Brake unit is reversible, permitting under- or over-wind free-wheeling. Brake release mechanism gives the operator complete load control at all times. The load can be checked at any point and even be "inched" down. Brake is enclosed, protecting it from the elements or external abuse.

Mr. G. T. Guest, Assistant to Project Manager of Comstock Midwestern, Limited, builders of "Big Inch-by-Inch", says, "The job needed Carco winches for towing and holding heavy machinery on steep grades and even for holding men by life lines. Had a single winch failed, men and machinery would have been lost. We found Carco winches equal to everything we asked of them."

On top of hill a Model J Carco winch is winching the Carco J winch and International TD24 shown above up steep slope at Coquihalla Canyon while it, in turn, is winching up clam digger.

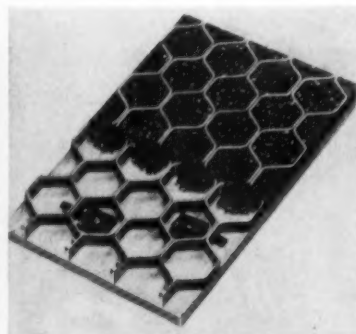
You can expect greater value from the leading producer, and get it from Carco, first in winch production. PACIFIC CAR AND FOUNDRY COMPANY, Renton, Wash. Branches at Portland, Ore., and Franklin Park, Ill.



# CARCO

### WINCHES

FOR ALL INDUSTRIAL TRACTORS

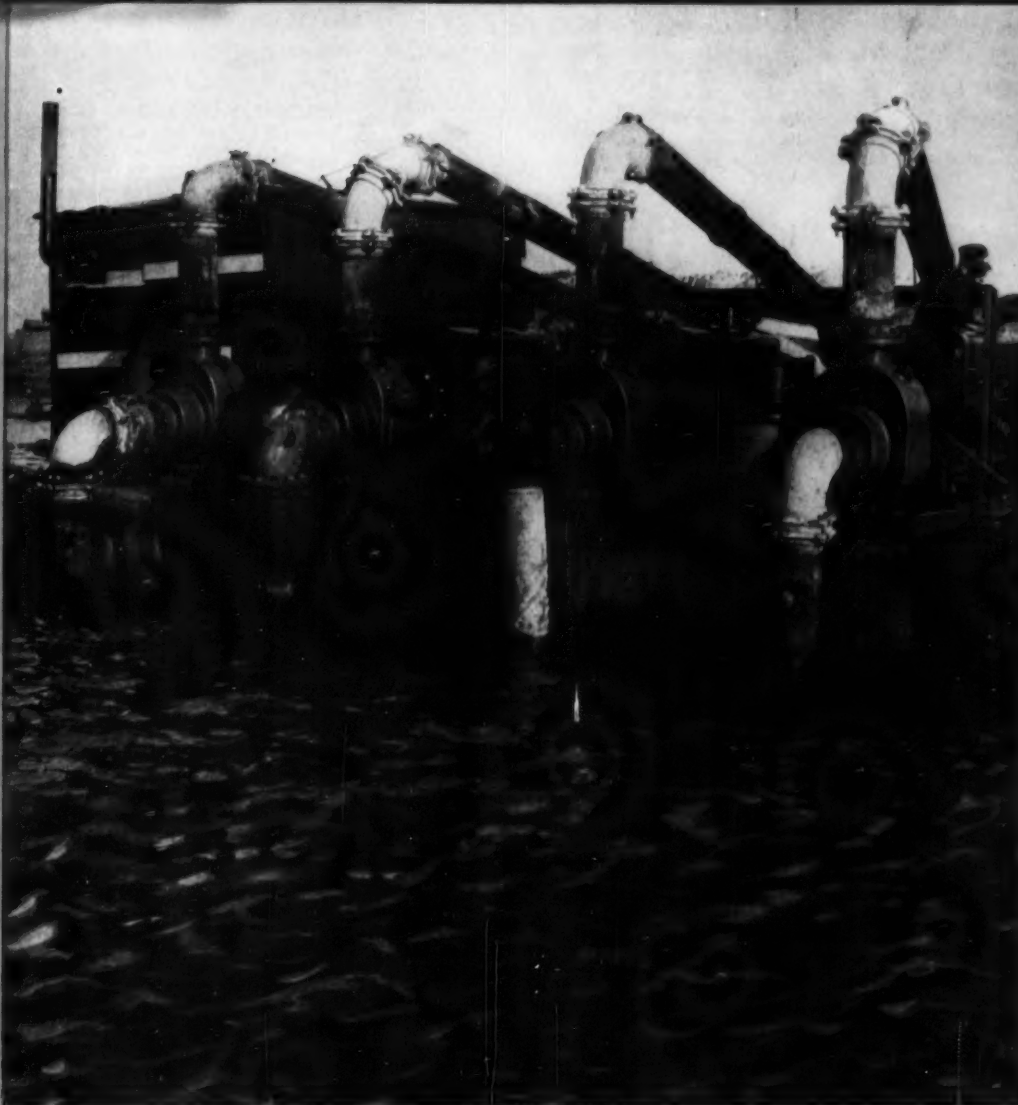


**SAFETY FLOOR**—A new floor surface for abnormal wear and rough usage, the new Klemp  $\frac{3}{8}$  in. x 16 gage Hexteel has been developed to meet the demand for a type of steel floor armor which can be used for resurfacing existing concrete and wood floors. The exposed steel surface is 18.15 sq in. per sq ft, and the weight 1.7 lb per sq ft. Filled with cold mastic, it is recommended for resurfacing garages, aisles, runways, decks and loading areas. It can also be used as armor in a new floor construction.—Klemp Metal Grating Corp., 6603 So. Melvina Ave., Chicago 38, Ill.

**VAULT LIGHT SURFACER**—Caycrete, a synthetic resin and rubber latex additive to sand-cement mixes, has been developed for vault light resurfacing. It adheres permanently to glass, metal and concrete in any thickness and exactly matches the surrounding sidewalk in color and texture. For average installations  $\frac{3}{8}$ -in. coverage is sufficient. A gallon of Caycrete covers approximately 70 sq ft.—Cayton Chemical Co., 9 East 40th St., New York 16, N. Y.



**TAPE RULE ATTACHMENTS**—Two new slip-on attachments for any  $\frac{3}{4}$ -in. tape rule make it possible to mark or cut accurately large panels without the use of a straightedge. The TRUE-GUIDE measuring aid of plexiglass, holds a fixed measurement by thumb pressure while the TRU-CUT aluminum tape-tip accommodates a knife or pencil for marking or cutting at the desired position. Price for both \$1.00 postage prepaid.—Wallboard Tool Co., 1704 Seabright Ave., Long Beach 13, Calif.



**300,000,000 GALLONS OF WATER IN 15 DAYS**—That's the record four dependable, trouble-free Marlow Self-Priming Centrifugal Pumps set when they dewatered the *world's largest natural drydock* at Grassy Point, New York. The contractor, Merritt-Chapman & Scott Corporation of New York City, barge-mounted the four 10" engine-driven Marlow Contractor's Pumps to speed the lake drainage job and finish the project *three days ahead of schedule!*

## **marlows** are dependable!

Bidding on construction jobs is getting more and more competitive. That's why contractors make doubly sure cost and time estimates are right, to get the job and show a profit. When it comes to pumping, dependable Marlow Self-Priming Pumps never let them down . . . work goes through on schedule. For complete data on AGC rated pumps and Marlow "Mud Hogs," see your Marlow dealer or write for Bulletin C-04.

**MARLOW PUMPS • RIDGEWOOD, NEW JERSEY**

**DIVISION OF BELL & GOSSETT COMPANY • Factories: Ridgewood, N. J., Morton Grove, Ill., Longview, Texas**



**CRANE ATTACHMENT**—A crane attachment with a forged steel hook and double-tilt cylinders is now available for all Michigan tractor shovels. Boom lengths range from 3 to 4½ ft, with corresponding load capacities of 4,000 to 7,500 lb. when the vehicle is stationary. The hook on the largest model can reach a

maximum height of more than 15 ft or extended more than 9 ft forward. Removal of four pins permits replacement of the bucket with the crane and no hydraulic connections are broken. The weight of the fork attachment ranges from 270 to 700 lb in the three models.—**Clark Equipment Co., Benton Harbor, Mich.**



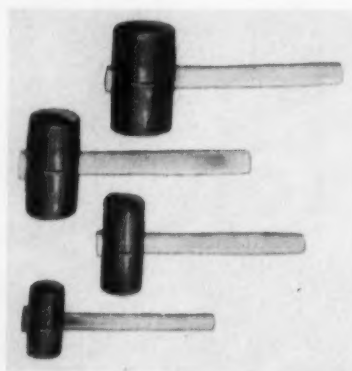
**WELDER** — Normally rated at 200-amp for average welding work, a new electric motor driven dc arc welder has an extremely wide range of 5 to 300 amp. Model MBT-204, as the model is designated, has a special resistance unit connected in the lowest range of the main selector switch, to make possible exceptionally low welding heats. — **Hobart Bros., Troy, Ohio.**

**WELDING ELECTRODES** — Improved flux coating, rapid burn-off rate, porosity-free deposits and smooth flowing characteristics are featured by the new Mir-O-Col #2 hard-facing electrode. This rod is especially recommended for rebuilding heavy-duty equipment. It can be applied in single, narrow beads or heavy weave passed up to ¼ in. in depth, without danger of chipping, spalling or breaking the bond. — **Mir-O-Col Alloy Co., 312 North Avenue 21, Los Angeles 31, Calif.**



**MASONRY SAW BLADES** — Completely new in design and setting a new standard for safety and economy, the Polk-A-Dot blade cuts every masonry material—hard, medium and soft. Reinforced out to the cutting edge with fiber glass webbing, the blades have additional reinforcing at both sides of the hub where the strain is greatest. In standard sizes, 12 in., 14 in., and 18 in. dia, the blades are available in a complete range of specifications for cutting any masonry material.—**Clipper Manufacturing Co., Dept. 631, 2800 Warwick, Kansas City 8, Mo.**

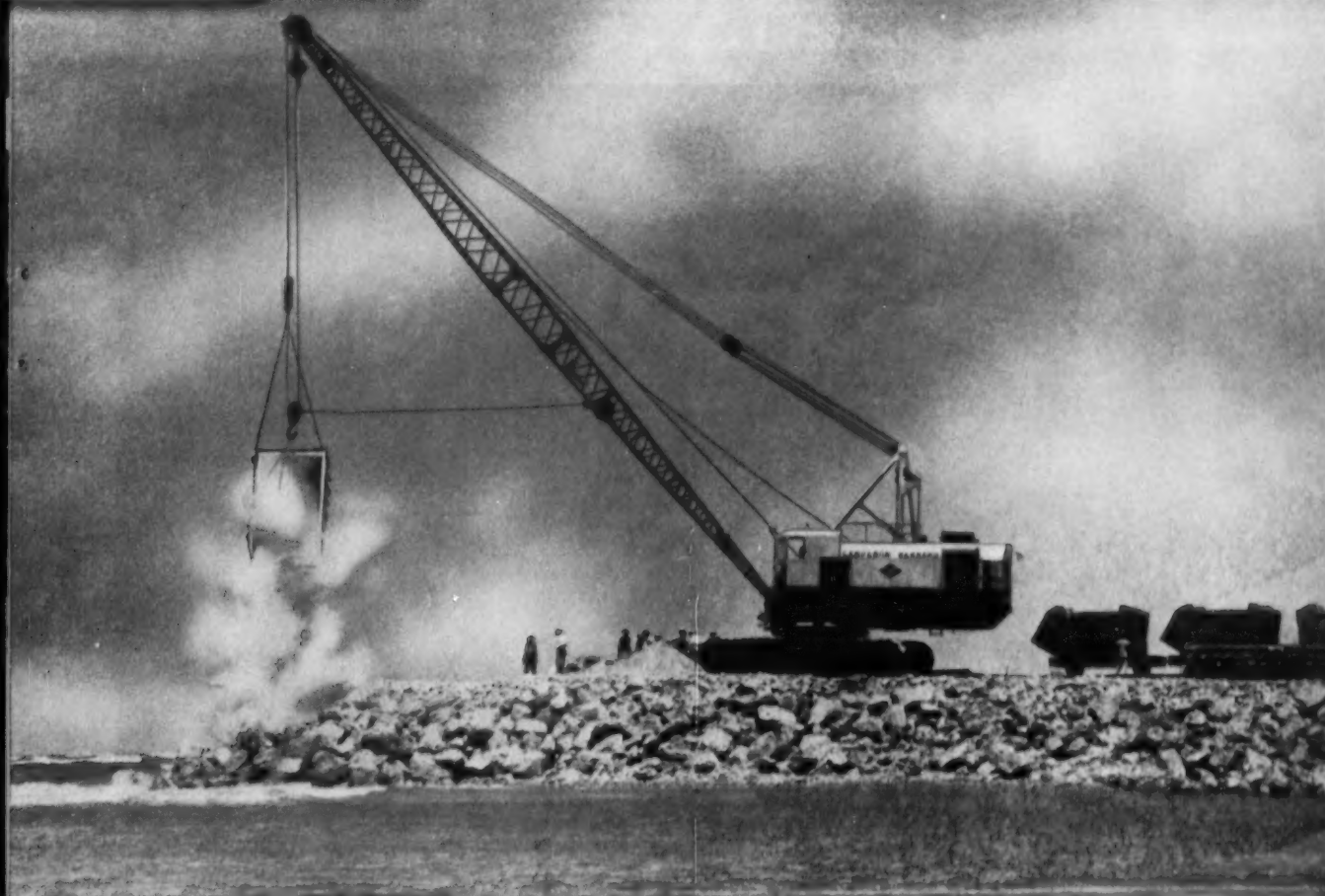
**METAL ROOFING** — Made of galvanized steel, this new roofing comes in rolls 30 in. wide by 31 ft long—also in half-rolls 15 in. wide by 31 ft long. Featured is a waterproof adhesive lap-sealer applied at the factory. This provides a watertight seal between courses. Advantages claimed are: (1) Less roofing is needed because many of the lap joints required in individual sheeting are eliminated. (2) Erection time is reduced, because the rolls can be easily handled, like rolled composition roofing. Each roll covers 75 sq ft. (3) No solid deck sheathing is required. The roofing spans the purlins adequately. —**Ceco Steel Products Corp., 5601 W. 26th St., Chicago 50, Ill.**



**RUBBER MALLETS**—Available now in 8-, 16-, 24- or 40-oz weights are rubber mallets reputed by the manufacturer to be bounceless and reboundless due to fiber layers in the rubber composition. These mallets protect the surfaces to be worked on. —**Miller Products Co., 29 Warren St., New York 7, N. Y.**

**PLASTIC BATTERY**—Designed specifically for construction-type applications, the 3-COE-7 is the first plastic-cased battery to be approved by UL. Eight to twelve years of useful life are anticipated for the battery, according to the manufacturer. The construction of the battery assures permanent contact between active material and the grid structure. This provides exceptionally low internal resistance for increased useful life and highly sustained capacity. Triple insulation with inert plastic and rubber assures maximum discharge characteristics. Polystyrene, the material selected for the cover and case, has high impact resistance and mechanical strength, in addition to its chemical and physical stability. The battery requires addition of water only once or twice a year under normal circumstances. — **Exide Industrial Division, The Electric Storage Battery Co., Box 8109, Philadelphia 1, Pa.**





## Six LIMAS team-up to tame the sea at Lake Maracaibo

Campeon Bernard is using a team of six top performing Limas to build a 1½ mile breakwater across the mouth of Lake Maracaibo in Venezuela. Four Type 803's and one Type 2400 high-lift shovel load rock on the island of Toas. The rock is then shipped by barge to the island of Zapata where another Lima 2400 unloads it and deposits it in the sea to form the breakwater.

On this and hundreds of other jobs around the world, Limas are proving that they can travel and work anywhere . . . and do every job better because of the built-in "extras" that Lima provides. You can depend on LIMA for low maintenance and less down-time.

**COMPARE QUALITY!** No other machine gives you as much as LIMA!

1. Piston ring type dirt seal and retainers in crawler rollers.

2. Rollers, gears and shafts are flame or induction hardened for longer life.
3. Main machinery is placed well back of center of rotation.
4. Anti-friction bearings are used at every vital bearing point.
5. Big capacity drums and sheaves are easy on cables.
6. Propel and swing gears and power take-off are enclosed in a sealed oil bath.
7. Torque converter (optional).
8. Wherever you are, you can depend on skilled service and nearby warehouse stocks of parts to keep your LIMA on the job continuously.

**COMPARE** and you'll specify LIMA for shovels (¼ yd. to 6 yds.), cranes (to 110 tons) and draglines (variable). Smaller capacities available on rubber.

LIMA Type 803 loading rock on island of Toas.



DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD



**LIMA** SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

**BALDWIN-LIMA-HAMILTON**

Construction Equipment Division • LIMA • OHIO • U. S. A.





## How **AMSCO**<sup>®</sup> helps you **HARDFACE MORE EFFECTIVELY**

The complete line of 15 Amsco hardfacing rods represents a selection of the toughest, hardest alloys available. Among the metals used for alloying are these highly wear-resistant elements—manganese . . . chromium . . . nickel . . . cobalt . . . tungsten . . . molybdenum. Each has particular resistance

to certain types of wear—including impact, abrasion, heat, corrosion.

Your Amsco distributor has many helpful methods for selecting the proper hardfacing rod to most effectively combat types of wear you contact daily. *Make him your hardfacing headquarters.*

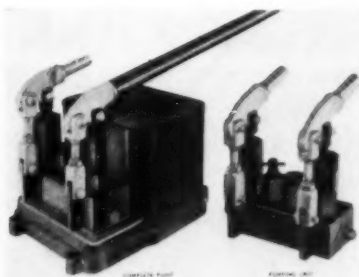


### **AMSCO CATALOG MAKES ROD SELECTION EASY**

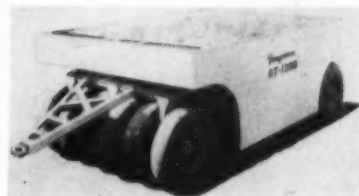
Write for the free catalog, *Amsco Hardfacing Alloys*. It presents complete analyses, metallurgical information and other pertinent data about Amsco's complete line . . . making it easy for you to look up the right rod to use in hundreds of common hardfacing applications. It is easy to understand and to apply the suggestions to your own operations. Send for it today.



**AMERICAN MANGANESE STEEL DIVISION**  
Chicago Heights, Ill.



**HYDRAULIC PUMP**—This unit has two separate pumps which permit a variation in the operating speed and pressure of the pump. One piston is  $\frac{3}{4}$  in. in diameter and delivers 3,000 psi for high volume and speed operation, while the second piston is  $\frac{1}{2}$  in. in dia and delivers 10,000 psi for maximum power at lesser speed. By merely changing the handle, either pump can be put to immediate use. The oil reservoir has a 1-gal. capacity. Built of cast aluminum, it is integral with the base. The pump may be purchased separately for use with any size reservoir. The unit has three high and one low pressure outlets. Any combination of pistons furnishing from 3,000 to 20,000 psi is available at extra cost.—**Owatonna Tool Co., 380 N. Cedar St., Owatonna, Minn.**



**WOBBLE-WHEEL ROLLER**—Model RT-1300, a new heavy-duty, multi-wheel, rubber-tired roller, is particularly suitable for the compaction of earthfill, sand, gravel, crushed rock, caliche, and asphalt. Featuring a heavy one-piece frame, dust-proof bearings and spring-hung wheels arranged to provide full coverage, the rear wheels overlapping the front, the roller has an empty weight of 4500 lb, ballasted with sand, 10 tons.—**Shovel Supply Co., Dallas, Tex.**

**CRANE WARNING DEVICE**—Electro-Alarm, an electronic safety device for warning cranes of dangerous high lines is now available in a new low-cost model for only \$185. This device will warn of the presence of electrical lines from 8 in. to 400 ft, depending on voltage in the lines and the setting of the sensitivity controls by the operator. Functions on ac, dc lines, telephone cables and some underground lines. The Electro-Alarm ECA is designed for installation by personnel without previous electronic experience.—**Electro-Alarm Safety Devices, 745 Pleasant St., Fresno 5, Calif.**

# Elis

Shoring  
Methods  
Used in  
Buffalo, N.Y.  
Job at a  
Great  
Saving!

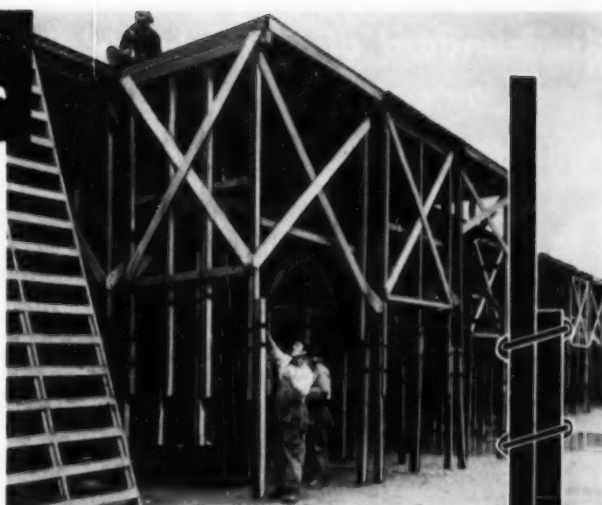


Photo shows tower section moved into position for concrete forming, Elis Shores quickly adjusted for height.

## Pre-Built Tower Sections Prove Economical And Fast for Floor Construction on Big Job

Approximately 200,000 square feet poured by the Siegfried Construction Company of Buffalo on the Broadway Market Parking Garage job! Tower sections, consisting of 8'x8' panels supported by adjustable Elis Shores, prove easy to move and re-use. A small 'Hyster' truck can lift and move them through aisles to new positions. Such flexibility saves time, materials, and money!

MFD. BY ELIS EQUIPMENT CO., INC., 211 N. W. 4th ST., OKLAHOMA CITY, OKLA.

# GATES FORM TIES

## Used in 13-Story Concrete Job!

Time, materials and labor saved by the use of Gates Break-back Form Ties in this 13-story parking garage built in Dallas by the O'Rourke Construction Company.

### GATES STANDARD FORM TIES (Rod type and 2"x4" type)

#### GATES STRAP TIES

They'll cut costs... save time and money on your job! Use attached form to request detailed information.



### Gates Break-back Ties (Rod type and 2"x4" type)

- Positive break-back because of Gates patented coating. Small holes easily filled, to give architectural finish.
- Zinc coated and twisted to form leak-proof chemical and mechanical bond.
- Versatile! Use for foundation, retaining walls, bridge abutments and high wall construction, and with sheathing, plywood or metal panels.

**GATES & SONS, INC.**  
80 South Galapago Street  
Denver 23, Colorado

CME 4-55

Gentlemen:  
Please send descriptive literature on Gates Form Ties immediately.

Name.....

Address.....

City..... State.....

## GATES & SONS, INC.

DENVER • SPOKANE

**Standard of the Industry Since 1936**



**AND NOW!  
EVEN BETTER  
THAN EVER!**

*Luber-finer*

## NEW REVOLUTIONARY MODELS 500-C and 750-C

Fully Covered by issued and pending U.S.A. and Foreign Patents

Save TIME and MONEY with  
Luber-finer's FASTER  
SIMPLIFIED Pack Replacement

### Luber-finer Exclusive Features

- **SINGLE BOLT CLOSURE**—Ingeniously designed Clamping Ring utilizes Single Bolt Closure for quick, easy Pack Replacement.
- **POSITIVE SEALING GASKET**—Long lasting "O" ring type gasket assures leak-proof lid closure at all operating pressures.
- **NEW TYPE INTERNAL DESIGN AND CONSTRUCTION**—Provides multiple seal to eliminate the possibility of oil by-passing the Luber-finer pack.
- **DUAL SAFETY VALVES**—Prevents oil drain-back, assuring exact crank case oil level reading at all times, stops oil from circulating through unit if lines are reversed or if Luber-finer is otherwise improperly installed.
- **ONE-PIECE EXTRUDED STEEL HOUSING**—Plus rugged mounting brackets insures durability and long, trouble-free operation.
- **TIME-TESTED PATENTED FILTERING PROCESS**—Only in genuine LUBER-FINER PACKS—the exclusive patented filtering process proved by millions of satisfied users the world over.

FOR COMPLETE INFORMATION WRITE DEPT. 78

**LUBER-FINER, INC., 2514 So. Grand Avenue, Los Angeles 7**



**IT'S WHAT'S  
INSIDE THAT  
COUNTS**

The Efficiency of  
LUBER-FINER'S  
Patented Process Pack  
**HAS NEVER  
BEEN EQUALLED!**



**BUCKET LOADER**—With a rated capacity of 10 tons per min, the B-68, a new, straight-line bucket loader, features hydraulic crowd, power steering, hydraulic controls, 20 mph road speed, an engine of 115 hp 4-wheel drive with 4-wheel booster brakes, and Timken-Detroit axles front and rear. Weight is 38,000 lb., and the chute will discharge at a maximum height of 14 ft 11 in. Boom is raised and lowered by a twin-cylinder hydraulic boom hoist. The swivel chute is adjustable from 30 to 50 deg. and swings hydraulically through a full 180-deg. arc.—**N. P. Nelson Iron Works, Inc., 850 Bloomfield Ave., Clifton, N. J.**



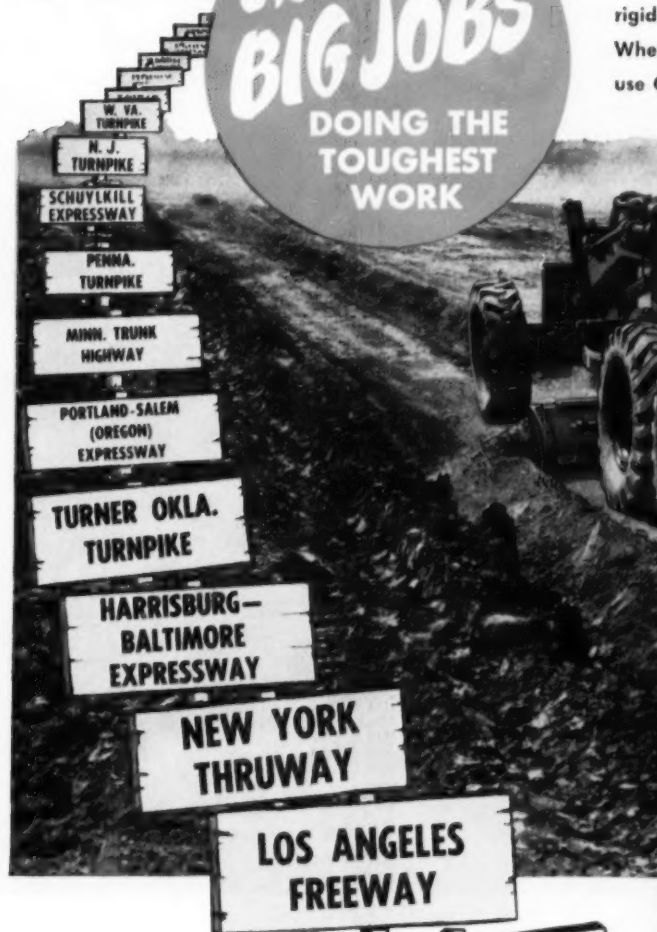
**MOTO-BUG NEWCOMER**—A new version of the Kwik-Mix Moto-Bug features a 50% increase in hopper capacity, four-wheel balance and a seat for the operator. The latest model R-15 is designed for heavy-duty work. The hopper capacity is 2,000 lb with 15 cu ft of space available for the load. As a flatbed platform truck it has a load area of 34x54 in. The platform is equipped with a latch for quick dumping and with stake pockets. Power is by a Wisconsin air-cooled gas engine with 3.4 to 1 reduction. It develops 8.3 hp. Speed is up to 6 mph. Weight of the entire unit is 1,100 lb.—**Kwik-Mix Co., 3026 W. Concordia Ave., Milwaukee 16, Wis.**

**FIBER PIPE**—A line of quarter bend and tee fittings complementing their 3-in. pipe is now available for use in storm drains, overflow lines and other non-sanitary conductors. — **Orangeburg Manufacturing Co., Orangeburg, N. Y., and Newark, Calif.**

# You'll always find **GALION** GRADERS or ROLLERS

*on the  
BIG JOBS*

DOING THE  
TOUGHEST  
WORK



Write for  
literature.

ESTABLISHED  
**GALION**  
1907

GALION equipment is designed and constructed to perform with MORE than ordinary results. GALION'S fast action . . . versatile maneuverability . . . freedom from downtime . . . balanced weight distribution . . . and most effective driving power . . . assure the kind of results necessary to meet the tight schedules and rigid specifications on these big construction projects. When you want to keep YOUR jobs on schedule — use GALION Graders and Rollers. Write for literature.

## GALION GRADER ATTACHMENTS



### BULLDOZER

It has a true bulldozing action. Hydraulic operation is independent of other grader controls. A wide range of adjustment is provided. Effective on jobs such as backfilling, leveling, spreading, snow removal, etc.

### OTHER ATTACHMENTS

Hydraulic Shiftable Moldboard • B & L Elevating Grader Attachment • Snow Plow and Wing • Creeper Transmission • Scarifier • Right or Left 2 ft. Moldboard Extensions • Enclosed Cab.

## MOTOR GRADERS • ROLLERS

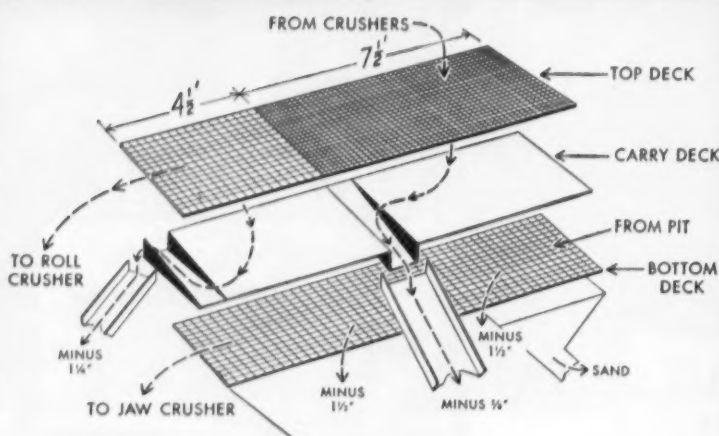
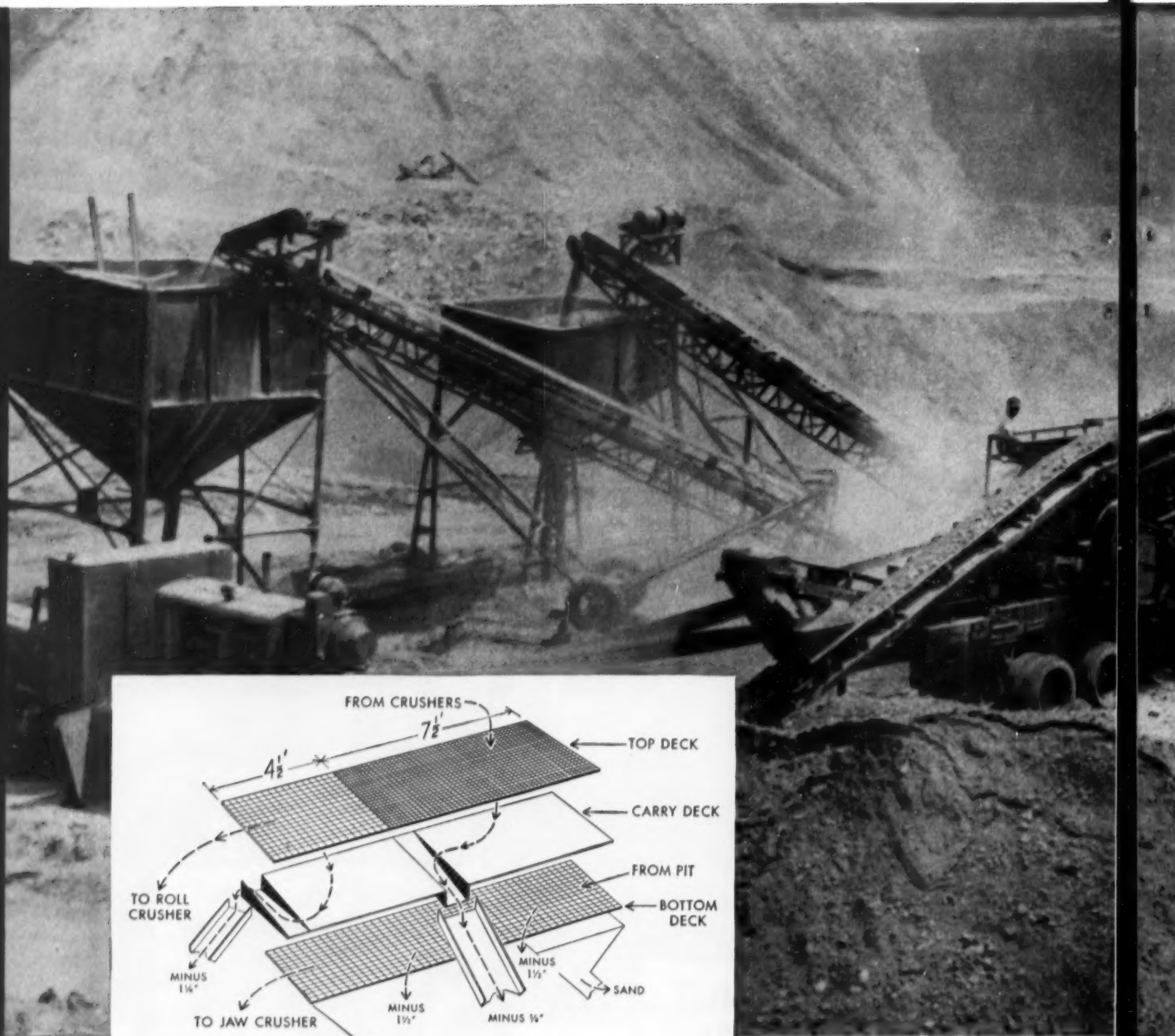


TRENCH ROLLERS PORTABLE ROLLERS 3-WHEEL ROLLERS TANDEM ROLLERS MOTOR GRADERS

THE GALION IRON WORKS & MFG. CO., General and Export Offices, Galion, Ohio, U.S.A.

Cable address: GALIONIRON, Galion, Ohio





## Duplex plant produces for three jobs at same time

**SIMULTANEOUSLY TURNS OUT TWO SIZES OF FRACTURED STONE TOGETHER WITH CONCRETE AGGREGATES OR ROAD GRAVEL**

If you are a contractor or gravel producer you'd probably be satisfied if your portable plant could produce 100% crushed material meeting a given set of specifications... and you'd probably feel that the plant would be doing all you had the right to expect of it.

To produce this 100% fractured material with an ordinary duplex plant you'd most likely have to use an auxiliary screening unit ahead of your duplex so all your material fed to it would be crushed.

But Fred Ward isn't so easily satis-

fied. In a pit near Detroit, Michigan, he's turning out two different sizes of fractured rock to meet the rigid specifications of the State Highway Department. In addition, he's producing road gravel.

*... and at times, he's producing all 3 products simultaneously... with one portable plant!*

### **State specifies fractured rock**

Michigan, like so many other states, is recapping a considerable mileage of old pavements with asphalt materials. The State Highway Department

requires that these materials contain 100% fractured particles in order to give the asphalt mat a definite stability.

According to present state specifications, the base course must be rolled to a 1 1/2" mat and must contain minus 1 1/4" products with 0-10% passing a #4 mesh (Spec. 9AA).

### **3/4" minus rock for top mat**

The top mat must also be made up of 100% fractured material, all of it passing 3/4", with 0-10% passing a #10 mesh (Spec. 25A).

And to further complicate matters, Ward had to meet these specifications from materials retained on a



1½" screen, leaving a considerable proportion of the pit-run to be disposed of.

#### **How problem was solved**

Fred Ward solved his problem by bringing in a PIONEER 46VE Bottom Deck Feed Plant.

Pit-run material is fed to the *bottom deck* of the 46VE's 3½ deck vibrating screen. Here, all material passing the 1½" mesh is removed and can be delivered to a nearby washing plant for washing, sizing, and stockpiling for use as concrete aggregate or road gravel.

Rock retained on the 1½" screen then passes through the 1036 jaw crusher which is set at approximately 2¾". The 2¾" minus material is then sent to the 12' top deck.

Here, the first 7½' of the deck is equipped with ⅝" openings, the last 4½' with 1¼" openings.

Oversize is fed to the 4022 roll crusher set at slightly less than 1¼" in a closed circuit with the top deck.

The unusual sizing job was accomplished with only two modifications to the standard PIONEER 46VE. *First*, built-in chutes in the center deck were sloped from one side to go across the screen so that ⅝" minus rock would be delivered to one side and 1¼" minus to the other.

*Second*, the chutes were flared from the side of the plant to feed into PIONEER Portable Conveyors which delivered material to bins (see photo).

Engineers who have visited the site

agree that no portable plant not employing the *Bottom Deck Feed principle* would possess the versatility and precise control of gradation necessary to produce the varied specification materials simultaneously.

#### **Available in 7 sizes**

PIONEER Duplex Plants, featuring Bottom Deck Feed, are available in 7 different sizes. For further information, write Pioneer Engineering Works, Inc., Minneapolis 13, Minnesota (subsidiary of Poor & Company, Chicago) or your nearest PIONEER Distributor.

**Pioneer**  
*Continuous* EQUIPMENT

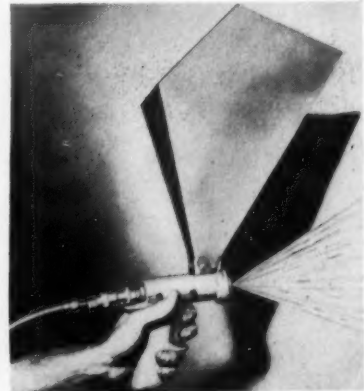
## EQUIPMENT NEWS . . . Continued



**ALUMINUM COATING**—Siliconed Asbestolite, which is composed of asphalt, asbestos, waterproofing oils, with silicone and aluminum flakes as additives, is reputed to protect and preserve roofs while reducing the under-roof temperatures as much as 20 deg. Adapted to air-conditioned buildings, such as theaters and offices, etc., it reduces the job of the air-conditioning equipment. It can be applied with a roofing brush, squeegee or can be sprayed on. The coating can be applied over old coatings without bleeding.—**The Monroe Co., 10703 Quebec Ave., Cleveland 6, Ohio.**



**PRESSURE LUBRICANT**—Spray-Lube makes it possible to spray a heavy-duty lubricant on open gears, chains, valve stems, etc. without preheating. It can be used in temperatures too high for normal grease or oil and will not drip or throw off running gears. With its excellent adhering qualities it makes a good rust preventive. It comes in an unbreakable aerosol dispenser and sells for \$1.25 a can.—**Pressure Products Co., P. O. Box 342, West Chester, Pa.**



**SPRAY UNIT**—E-Z-Tex, a new portable spray unit recently developed, appears to offer a number of "in-use" advantages, including a simple stop-and-go trigger switch, non-clogging spray mechanism and vital parts made of stainless steel or brass that cannot rust or corrode. A large stainless steel hopper is fastened to the pistol-like hand spray. Material from the hopper feeds into the unit's spray chamber. Cleaning the hopper, according to the manufacturer, requires less than 1 min by flushing it out with water. The unit is powered by a 1-hp, 110 v. electric motor, (Continued on page 224)

(Advertisement)

## This CMC combination proves to be real profit maker



**CMC's NEW TRANSCRETE TRUCK MIXERS** and their ability to put still more payload on the road and more concrete in the forms is the big topic of conversation among Ready Mix Operators. They are really enthused over Transcrete's improved charging hopper control and new easier-to-handle chutes with optional hydraulic chute lift.

They're all talking about **THE UNIQUE TRANSCRETE FLOATING DRIVE** with simple chain take-up adjustment which eliminates the troubles experienced with the ordinary rigid drive. Operators have long been sold on Transcrete's larger drum diameter, deep "L" section

blades and a progressively increasing blade slope that assures more thorough mixing, more positive discharge, and a greater ability to handle stiff, low slump mixes.

The new rugged, lightweight Transcrete is available in 3½ to 6 yard capacities. **WRITE FOR BULLETIN TM 1055.**

## CMC Simplex, Duplex, Multiplex are latest word in batching bins

The clincher to the combination for bigger profit was made with CMC's introduction of their new Simplex, Duplex and Multiplex Bins. Users enthusiastically report these bins fill a long apparent need in the industry for a variety of more compact, lower bins for central plants and many other installations. Simplex is available in 47 and 97 ton capacities and Duplex in 100 ton capacity. Both offer a choice of 2, 3 or 4 compartments with or without cement storage. Multiplex is available in 110 and 165 ton capacities with 4 compartments for aggregate — with or without center cement storage.



CMC also has Bin Batchers for smaller jobs and a complete line of other outstanding batching equipment. Write for latest literature.

**CONSTRUCTION MACHINERY COMPANIES, Waterloo, Iowa**





## INTERNATIONAL... Right From the Start or as Replacements



**Houston contractor rates heavy-duty INTERNATIONAL engines tops for his equipment after 18-year check on their low-cost power and service**

INTERNATIONAL UD-350 Diesel Power Unit operates this Insley K-12 back hoe shown excavating for a storm sewer in Houston subdivision. This engine is one of 18 IH carbureted and diesel engines from 17 to 214 hp available as original or replacement power plants in earthmoving equipment.

Take it from A. F. Pike, a general contractor in Houston, Texas, since 1937, INTERNATIONAL Power Units are the No. 1 power choice to get top production at lowest cost out of earthmoving machines.

Contractor Pike's Insley K-12 back hoe is but one of several machines he powers with INTERNATIONALS for these important reasons:

*"I've been using INTERNATIONAL engines since 1937 because they give me full-rated horsepower, and power my machines for lowest cost."*

International Harvester has been designing and manufacturing engines for heavy-duty use for more than 50 years and in that time have pioneered such engine features as all-weather starting, positive reserve torque control, valve-in-head construction, micronic oil filtration, and

induction hardened crankshafts to name but a few.

Get top production at lowest cost out of your machines by specifying INTERNATIONAL engines as original equipment or installing an INTERNATIONAL at repowering time.

Your INTERNATIONAL Industrial Power Distributor is the man to see for dependable cost and performance estimates and expert application assistance required to repower your machines with INTERNATIONALS. Call him today.

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS



**INTERNATIONAL**  
INDUSTRIAL POWER

**MAKES EVERY LOAD A PAYLOAD**



# GOODALL Waterproof CLOTHING...FOOTWEAR

*For Reliable,  
Economical  
Head-to-Toe  
Protection*



## COATS • JACKETS • OVERALLS

Durable, full-cut garments, in rubber, oiled and latex constructions, for every kind of wet-weather work. Made of selected materials, with exacting craftsmanship, they are guaranteed waterproof, assuring complete protection from the elements. Reinforced where extra strength is needed, without impairing comfort and full freedom of movement. Available in a variety of styles, in all sizes. No. 338 Coat is an old-time favorite—double back, corduroy-lined collar, 49" long.

## SUITS—

Style 80 Jacket with Style 81 Overall makes the ideal shaft suit. Other jacket-and-overall suit combinations to meet every preference or job requirement.

## SAFETY HATS

"Hardboiled" Safety Hats in fibreglass or aluminum. Light weight and comfortable, yet providing greatest possible head protection. Exceed highest established requirements for strength, heat and moisture resistance, and dielectric tests.

## "TOE-SAVER"® BOOTS

Smooth, tough, flexible black rubber, heavy duck lined. Cushion insole. White cap over reinforced steel safety toe tested to withstand 2,000 lbs. pressure. Treaded soles. Hip, Style MB-346. Storm King, Style MB-780. Short, Style MB-946. Now with permanently marked size numbers.

The "Toe-Saver" feature is also available on a variety of work shoes, and on our "Contractors" Mucker Boot.



Contact Our Nearest Branch for Details and Prices



## GOODALL RUBBER COMPANY

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J.  
Branches: Philadelphia • New York • Boston • Pittsburgh • Indianapolis • Chicago • Detroit • St. Paul  
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Houston • Goodall Rubber Company of Canada, Ltd., Toronto • Distributors in Other Principal Cities

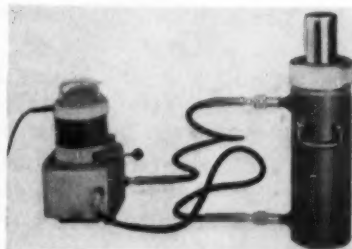
## EQUIPMENT NEWS . . .

Continued from page 222

weighs 130 lb, is 22 in. long, 21 in. high and 20½ in. wide. It fits easily into the trunk of an automobile.—E-Z-On Corp., 1725 W. Pershing Rd., Chicago 9, Ill.



**PORTABLE CORE DRILL**—A new lightweight, portable core-drilling machine, the Demo DL 875S, drills fast, self-cleaning holes ½ to 6 in. in dia through materials as tough as, and including reinforced concrete. Weighing only 50 lb, the machine is operable by one or two men on 8-amp, 60-cycle or less, 110-v ac-de current. The Demo is powered by a lightweight, portable Gen-A-Matic Model 17D generator of 1,700-w power. With coupled extensions the drilling depth is 100 ft. Unique features include a buttress-shouldered thread that removes cuttings with a minimum of lubricant, and a water and air swivel that distributes lubricants through the entire length of the core tubes.—Demo Tool Corp., 8735 Melrose Ave., Los Angeles, Calif.



**JACK AND PULLER**—A new 60-ton hydraulic jack and puller is called the Re-Mo-Trol. The jack hydraulic ram can be both raised and lowered by power. The jack has a 10-in. travel, and the ram is equipped  
(Continued on page 226)

# When there's a turnpike being built you'll see Gradalls on the job!

## GRADALL

has proved itself  
on all these  
turnpikes

OHIO TURNPIKE

NEW YORK THRUWAY

WEST VIRGINIA TURNPIKE

TURNER TURNPIKE

PENNSYLVANIA TURNPIKE

MAINE TURNPIKE

GARDEN STATE PARKWAY

NEW JERSEY TURNPIKE



**W**HY are cost-conscious contractors becoming so "sold" on Gradalls for turnpike work?

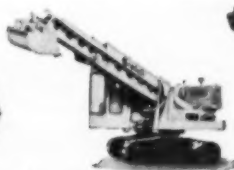
No other machine does so many *different* jobs so well—often work no other machine can touch. You'll see a Gradall digging out rock one day, and carefully spreading top soil the next. It's a real production machine for such jobs as trenching for drainage tile. But it is equally profitable on a "hand-finishing" job where it replaces a whole crew of hand laborers.

Because of its many uses you'll keep a Gradall busy from start to finish of any contract. And from one job it's ready to speed to the next, carrying its own quickly interchangeable attachments for any work ahead. On the West Virginia Turnpike Gradalls averaged over 60 on-the-job hours per week for a full year! An Ohio Turnpike Superintendent reports, "I've kept two Gradalls going full time for 1½ years on this section. They do everything you recommend them to do."

Take a look at this partial list of turnpike jobs now being handled by Gradall. Then see one in action. You'll see how you can *boost profits* on your next contract—with a Gradall!

## Gradall cuts costs on all these turnpike jobs!

- Digging gutters and drainage ditches
- Loading out and spreading top soil
- Excavating head wells for spillage basins
- Trenching for under drain and large drains
- Placing concrete culvert and drainage pipe
- Backfilling
- Work under bridges and around other structures
- Sloping
- Final grading between concrete forms
- "Hand finish" jobs
- Placing concrete forms
- Loading boulders



CRAWLER-MOUNTED  
GRADALL



SELF-PROPELLED  
GRADALL

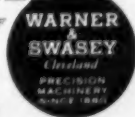


RAILROAD  
GRADALL

# Gradall

DIVISION OF

Distributors in over  
75 principal cities in the  
United States and Canada



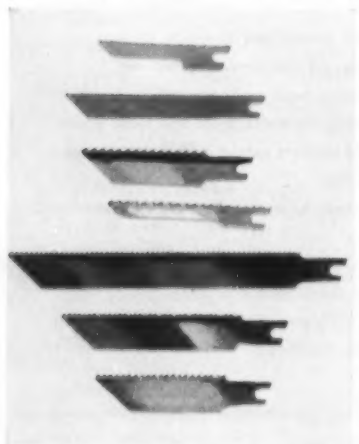
YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS WITH WARNER & SWASEY MACHINE TOOLS, TEXTILE MACHINERY, CONSTRUCTION MACHINERY

## EQUIPMENT NEWS . . . Continued

with the simplex center hole which permits pulling without the necessity for using elaborate back-up devices to eliminate off-center torque. The pump is powered by a ½-hp universal motor which may be operated by 115 v, ac or dc current. The 60-ton ram is also available with remote hydraulic hand pump instead of the motorized unit.—**Templeton, Kenly & Co., 2525 Gardner Rd., Broadview, Ill.**



**POWERENCH**—A torque multiplier for high torque nut applications is the Model 104 Powerench. Tool is manually operated with a work handle or tension indicator. Because of its power advantage, only 150 ft/lb need be applied at input to obtain 1,800 ft/lb at output or 500 lb input for 6,000 ft/lb output. It has a working load output of 7,000 ft/lb and is strength tested to 10,000 ft/lb. It weighs 29½ lb.—**B. K. Sweeney Mfg. Co., 1601-23rd St., Denver 17, Colo.**

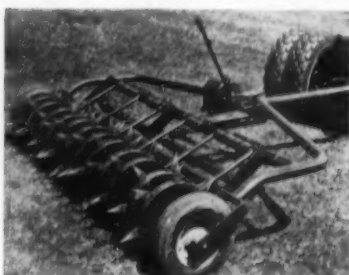


**CUTTING BLADES**—A new line of blades for use with reciprocating saws is available in 17 different types. Featured is a new plaster cutting blade, the Plastermaster, which the manufacturer claims will last from two to three times longer than any other blade on the market.—**Independent Blade Corp., Joliet, Ill.**

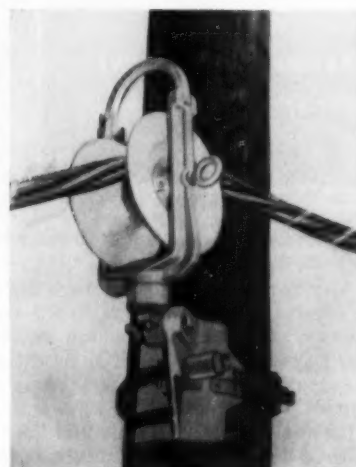


**CRUSHER**—A newly designed Austin-Western single-pass, diesel-electric, portable crushing plant, produces 2 sizes of material. Eliminating chains, idlers, sprockets and clutches, all components except the crusher are driven by individual electric motors, controlled from the operator's platform. Also available with straight mechanical drive, the

plant weighs approximately 20,000 lb. Components are a loading hopper with grizzly, mechanical feeder, 2x6 double-deck, inclined gyrating screen, roller-bearing jaw crusher, 24 in.x27 ft delivery conveyor, an 18 in.x20 ft sand reject conveyor operable from either side and a 45 hp engine.—**Baldwin-Lima-Hamilton Corp., Lima, Ohio.**



**ROADSIDE RENOVATORS** — For worn-out, compacted and eroded roadside slopes, parkways, grass islands, or new seeded construction, this machine called the Renovataire, helps maintain healthy turf with little surface disturbance. The machine has 22-in. wheels built in pairs, individually suspended from the drawbar to provide a free floating differential action that follows any contour. It can be operated at speeds up to 5 mph. The saw-toothed knives are adjustable at 2, 3 and 4 in. in depth and penetrate the soil with a slicing action making 2-in. slits.—**Soillaire Industries, 1208 - 2nd Ave., South, Minneapolis, Minn.**



**ALUMINUM PULLEY**—A new aluminum alloy pulley is claimed to reduce installation time of aerial cable by as much as 75%. Known as the Tey aerial cable pulley, it weighs less than 25 lb and is completely flexible in horizontal and vertical planes. It is designed for a recommended cable load of 600 lb, while requiring only 8 in. of pole length. Manufactured by the **Tey Mfg. Corp., Milford, Conn.**

**YELLOW UNDERGROUND HOSE**—The new Golden VIM water hose is made a bright yellow to make it more visible during underground water service. The tube is compounded for resistance to water absorption, while the cover is designed to withstand severe service conditions. Offered in ¾- and 1-in. ID sizes.—**Boston Woven Hose and Rubber Co., Cambridge, Mass.**

**FLIP-SEAL CONNECTOR**—A new, UL-approved electrical connector, has a flexible rubber lip over the female component of the connector which flips over the male element to insure a positive sealing and locking-type action. Both ends of the connector are provided with  
(Continued on page 229)





**AND NOW** the addition of  
**TORQUE CONVERTER**  
**MAKES THE AUSTIN-WESTERN SUPER 88**  
**THE HOTTEST MOTOR GRADER ON WHEELS**

By adding the Torque Converter to the already famous A-W All-Wheel Drive and Steer (Controlled Traction) Power Graders, the A-W engineers have developed the most revolutionary machines in motor grader history—the most remarkable machines to ever “hit” the dirt—Austin-Western Power Graders.

**MULTIPLIES** torque hydraulically.

**HOLDS** the load to the power source.

**APPLIES** power to the load smoothly.

**FITS** the power to the load more efficiently.

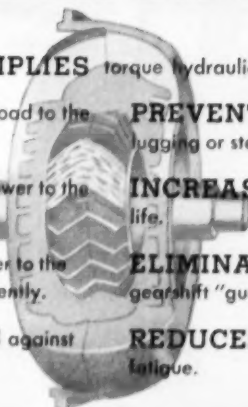
**PROTECTS** against shock-load.

**PREVENTS** engine lugging or stalling.

**INCREASES** engine life.

**ELIMINATES** gearshift “guess.”

**REDUCES** operator fatigue.



**Austin-Western**  
 Power Graders • Motor Sweepers  
 Road Rollers • Hydraulic Cranes



Construction Equipment Division

Manufactured by  
**AUSTIN-WESTERN COMPANY**  
 Subsidiary of Baldwin-Lima-Hamilton Corporation  
 AURORA, ILLINOIS, U.S.A.

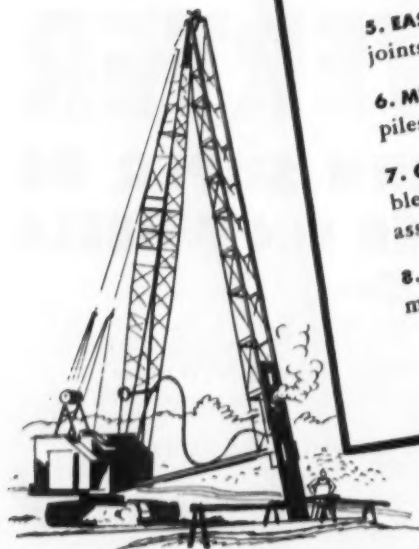




## SAVE 8 WAYS!

### ...with Monotube Foundation Piles

- 1. EASIER HANDLING.** Because of rigid, light-weight construction, tapered steel Monotubes are easy to transport and handle on the job.
- 2. STANDARD DRIVING EQUIPMENT.** Light, mobile rigs and standard hammers are all you need to drive Monotubes. No need for an internal mandrel.
- 3. RAPID INSTALLATION.** Monotubes "go in" fast because of easier handling and rig mobility. One Monotube can be picked up while another is being driven . . . no lost time waiting to get pile in leads.
- 4. RANGE OF LENGTHS.** Since Monotubes are manufactured in varying sections, *any* length requirement can be met. They can be driven as a long pile, or in short sections for underpinning work.
- 5. EASILY EXTENDED.** Fast, single girth welding of telescopic joints makes Monotubes the easiest integral pile to extend.
- 6. MINIMUM WASTE.** Cut-offs can be re-used to extend other piles.
- 7. CHOICE OF ASSEMBLY.** Monotubes can be factory assembled to any length. If desired, sections can be quickly field assembled.
- 8. VERSATILITY.** Variations in diameter, gauge and taper make Monotube Piles readily adaptable to all conditions.



**ENGINEERING SERVICE.** Union Metal engineers, backed by a wealth of application, performance and test data, are always ready to assist with your "hard to solve" foundation problems.

For further data on Monotube piles for bridge, pier or highway construction, and foundations for every type and size of building, request Catalog No. 81. Address The Union Metal Manufacturing Company, Canton 5, Ohio.



## UNION METAL

*Monotube Foundation Piles*



a seal to keep out moisture, dirt, dust and other matter which tend to interrupt electric flow. At present, 10 different connectors are available in this line for a variety of electrical systems and capacities.—**Rodale Manufacturing Co., Inc., Emmaus, Pa.**



**FLEXIBLE STEEL COUPLING**—For large diameter pipe lines 24 to 96 in. a new flexible steel coupling is now available. The Baker AllSteel Couplings consist of a formed middle ring, two rubber gaskets, two follower-flange rings and heavy bolts. These couplings can be used in applications of water, gas, oil or sewage lines. No special expansion joining is required when this type of coupling is used on all joints. No welding, only a wrench, is required to couple a string of pipe. Lastite Rubber and Lastite Neoprene gaskets are used.—**R. H. Baker & Co., 2070 East Slau-son Ave., Huntington Park, Calif.**

**SPECIAL DITCHER**—This Model 306 Gar Wood Buckeye ditcher is a special model developed for digging trenches for roadside drainage where narrow shoulders and sloping banks prevent standard ditchers from operating. It has an offset digging wheel frame which allows the digging wheel to be positioned to the left or right of center to dig trench in line with the outside edge of the machine's crawlers. Digging capacity is comparable to the standard Buckeye model utility ditcher which digs up to 5 ft 6 in. deep and 24 in. wide.—**Gar Wood Industries, Inc., Wayne, Mich.**



## The Most Versatile Equipment You Could Own

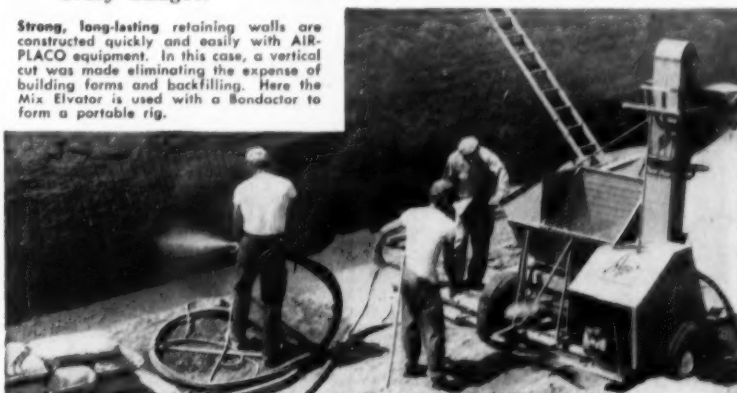
### **AIRPLACO** BONDACTOR OR NUCRETOR

You'll be amazed at the many ways you can use AIRPLACO Concrete Gunning Equipment! With a Bondactor or Nucretor, you can efficiently gun concrete, refractory linings, insulating concretes and all types of gunnable aggregates plus wet or dry sandblasting.

You'll be amazed, too, when you discover the many ways in which you can save valuable time and money with AIRPLACO equipment. After a few hours of instruction, from one of our field men, your operators will be efficiently using the equipment and discovering new uses and methods of saving money for you.

AIRPLACO Bondactors and Nucretors are available in a range of sizes from 1/2 to 6 cu. yd. of aggregate per hour capacity. A model and size for every job . . . for every budget!

Strong, long-lasting retaining walls are constructed quickly and easily with AIRPLACO equipment. In this case, a vertical cut was made eliminating the expense of building forms and backfilling. Here the Mix Elevator is used with a Bondactor to form a portable rig.



**WRITE TODAY** for complete information including the many uses for AIRPLACO equipment and the name of your nearby distributor. Please state intended use and capacity requirements.

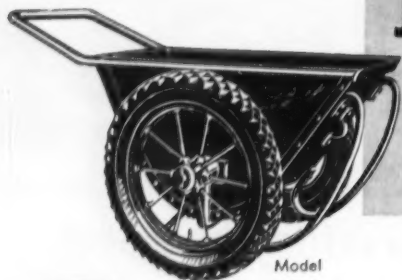


## **AIR PLACEMENT EQUIPMENT CO.**

1010 WEST 24TH ST. • KANSAS CITY 8, MO.

MANUFACTURERS OF ADVANCED DESIGN CONCRETE GUNNING EQUIPMENT

# BUILT STRONGER TO LAST LONGER!....



Model  
8-88



## JACKSON CONCRETE CARTS

Grueling construction work is a harsh but accurate way to test the soundness of concrete carrying equipment. The ease with which the rugged Jackson concrete carts have passed this "test" is ample proof of the sturdy construction and ease of handling that have made them the favorites of contractors. Write or phone today for complete details on a Jackson concrete cart to fill **your** needs.

600

**Jackson** MANUFACTURING COMPANY  
HARRISBURG, PENNA.

*Oldest and largest wheelbarrow maker in America*

### BUY

these cost-reducing  
forms for concrete:

#### 1. EFCO "Lifetime" Steel Forms

**BUY** these forms for your: (a) Minimum form requirements, (b) Larger form requirements where reuse of the form equipment and simplicity of the form work seem to make purchase more practical.

#### 2. SPECIAL ECONOMY Forms

These are designed and manufactured to your specifications and are supplied with or without supervisory service for your special form requirements.

### RENT

#### 3. ECONOMY Steel Forms

**RENT** these forms for your: (a) Larger unusual form requirements, (b) More difficult form requirements. These forms are supplied with supervisory service.

For details and estimates, call or write:

**ECONOMY FORMS  
CORPORATION**

HOME OFFICE: DES MOINES, IOWA  
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Kansas City, Mo. • Lincoln, Nebr. • Minneapolis, Minn. • Ft. Wayne, Ind. • Cincinnati, Ohio  
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## New PUBLICATIONS From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use.

**JAW CRUSHERS**—New developments and improved features in design to increase efficiency and help reduce operating costs are adequately covered in a 40-p. booklet of overhead eccentric jaw crushers and stationary primary plants. This booklet, identified as No. 649, contains numerous product illustrations, cut-aways and job photographs, dimensions and footing drawings for each in the line of 12 sizes of jaw crushers; tables on capacities, toggle and jaw plate selections and specifications. Write to **Pioneer Engineering Works, Inc., Minneapolis, Minn.**

**POWER STEERING**—A new 4-p. catalog (M-5106) describing a wide variety of hydraulic power steering systems is available from **Vickers Inc., 1400 Oakman Blvd., Detroit 32, Mich.** Circuit diagrams are shown for four types of power steering systems based on the S-23 series power steering boosters, vane-type power steering pumps, a combination volume control and overload relief valve, and an oil reservoir which can be assembled to fit variety of installation and performance requirements.

**PLYWOOD CATALOG**—A new 1955 catalog based on the revised Commercial Standards, includes type-use recommendations, standard stock sizes for both interior and exterior grades, engineering data on sheathing, forms, siding and paneling and the FHA minimum requirements. Sample copies are available from the **Douglas Fir Plywood Association, Tacoma 2, Wash.**

**STILL PRODUCING**—A booklet which tells the "no parts orphans" story by Caterpillar is entitled "Old, But Still Producing". It shows the first diesel-powered track-type tractor built in 1931 which still is at work. Other photographs and testimonials from owners of tractors, motor graders, electric sets and engines all more than 15 yr old are depicted. Ask for Form D477 from any Caterpillar dealer or write directly to **Caterpillar Tractor Co., Peoria, Ill.**

**PRECAST CONCRETE**—A field report on the profitable handling of precast concrete for bridges with the use of the RT-150 and YT-40 lift trucks has just been prepared by the **Hyster Co., Box 4318, Portland 8, Ore.**

# New 30"x26" Rolls

Greatest secondary crushing capacity ever offered in a plant of this weight

## Giant Capacity

Gives you far more fine crushed material per hour. Has the ideal crusher for the big 4' x 12' screen

# Universal 880 Senior "R"

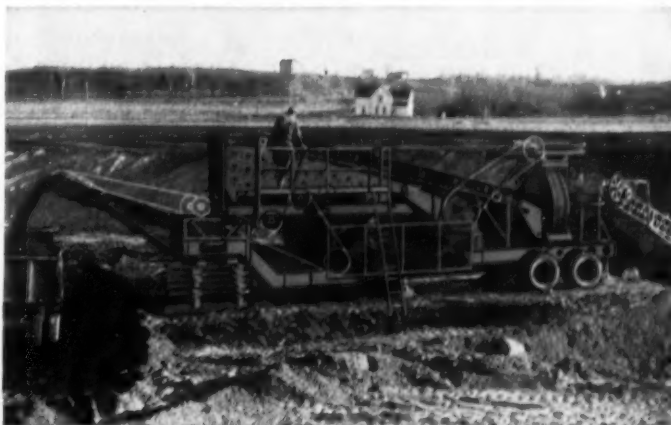
10" x 36" Jaw • 30" x 26" Roll Crusher • 30" Conveyors • 48 sq. ft. Screen

You want a plant that delivers screened and crushed material at a record rate and produces it at lower cost per ton. This is it!

The 880 Senior "R" teams a huge 48 sq. ft. screen with the biggest roll crusher ever offered, big, rugged 30" conveyors and a high capacity 1036 jaw crusher to give you a plant unequalled for high production in its weight class.

It's easy and economical to operate, too. You can adjust the jaw discharge quickly while standing on the ground—insures full control over primary crushing at all times. Dual clutch control on delivery conveyor speeds up truck loading of finished material. Plant operator or truck driver can control conveyor discharge.

Add to this—trouble-free V-belt drive, head-drive front delivery conveyor, extended operator's platform, plus the dozens of other advanced Universal features . . . and you've got a big, profitable, easy-operating plant that can't be matched. Write for illustrated bulletin, today!



Universal Senior 880 "R"—designed to meet highway weight limitations



### UNIVERSAL ENGINEERING CORPORATION

327 8th Street, Cedar Rapids, Iowa

A Subsidiary of Pettibone Mulliken Corporation, 4700 W. Division St., Chicago 51, Illinois



# OWEN

## GETS DOWN TO BUSINESS!



...down into capacity loads  
at rapid digging speeds

Owen buckets get "down to business" because they are designed and built for just that purpose. Low center of gravity...teeth made and positioned for deeper penetration...more rugged lip, shell and arm construction...full balanced digging power on each jaw of bowl...all these Owen features assure a maximum load at every bite.

Write today or ask your dealer for the latest Owen bucket catalog giving full details on all sizes and models.



*"A mouthful  
at every bite"*



THE OWEN BUCKET CO.

6020 Brookwater Avenue • Cleveland 2, Ohio

Branches: New York, Philadelphia, Chicago, Berkeley, Calif., Fort Lauderdale, Fla.

**ALLIS-CHALMERS**—Two new catalogs cover the Models TS-200 and TS-300 Motor Scrapers and Motor Wagon Models TR-200 and TW-300. Both show important mechanical features and give specifications and on-the-job data. Copies are free and can be had from Allis-Chalmers Mfg. Co., Tractor Div., Milwaukee, Wis.

**LeROI GENERATOR SET**—A new bulletin describing the LeRoi custom-built engine-generator set ranging in seven sizes from 60 to 675 hp with generators capable of producing 50 to 350 kw has just been released. All the outstanding features of these engines are covered, plus application photos. Copies of the bulletins may be obtained from the LeRoi Div. of Westinghouse Air Brake Co., 1706 S. 68th St., Milwaukee 14, Wis.

**ROSCO LITERATURE**—A new bulletin just released by Rosco Mfg. Co., 3118 Snelling Ave., Minneapolis 6, Minn. describes the firm's complete line of bituminous distributors, haul tanks, brooms and street flushers. This pocket-size unit is designed for quick reading. Ask for Bulletin 54-4.

**CONCRETE PLANT DATA**—Suggestions for planning concrete plants for central mix, transit mix and concrete products are contained in a 44-p booklet just issued by the C. S. Johnson Co., Champaign, Ill., a Koehring subsidiary. This booklet, one of the best ever published, covers market analysis, types of operation, plant location, plant bin selection, aggregate storage and handling, cement storage and handling and batchers. It is well illustrated by photographs and actual how-to-do-it diagrams.

**EQUIPMENT**—A 20-page two-color booklet on cement handling and storage equipment which covers central-mix and transit-mix plants, cylindrical, conical and rectangular bins, portable storage bins, collecting cars, rotary values, scales, batchers and beam equipment has just been issued by Fanning Schuett Engineering Co., 4325 N. Third St., Philadelphia, Pa.

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**SIGHT LEVELS INSTANTLY!**

**STRATX SURVEYING Hand Level**

Perfect for staking, elevations, drainage—farm, farm and so on. Simple to use—lets you place, level, accurate with confidence. Adjusts instantly from outside of instrument. No need to open! That's it to work now. It pays for itself on one job—fully guaranteed. 12 inch, level, COB, or 112 inch, level, no more changes. Includes leather case included. 1962 price list.

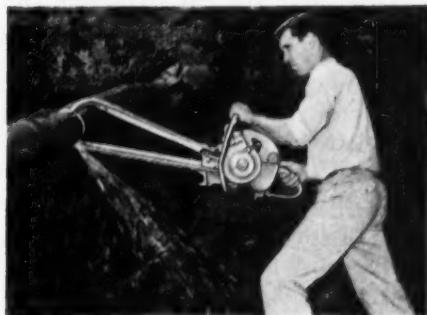
**\$12**

IN U.S.A. **STRATX INSTRUMENT CO., INC.**  
20100H SURGEY BLVD., LOS ANGELES 26, CAL.



Bucks logs right on the ground. Fast. Quick. Clean. Jaw-grip spike bites into dirt . . . keeps chain up out of dirt. Spike takes thrust of chain . . . prevents logs from rolling or spinning away.

Plunge-bucking speeds clearing operations. Gets into all kinds of hard-to-reach places. Enables operator to work quickly, but safely, in close quarters and on steep slopes.



## NEW CLEARING ATTACHMENT FOR HOMELITE CHAIN SAWS

Here is a completely new Homelite development that makes a Homelite One Man Chain Saw an even greater time-and-money-saver. Converts the Model 17 Chain Saw into an *all-purpose clearing tool* . . . quickly, easily.

With this highly maneuverable new attachment . . . driven by the 3.5 h.p. engine of the 22 pound Homelite Model 17 . . . one man can do the work of

a whole gang of men using saws and axes. He can fell, buck, and limb all small trees and saplings without bending, stooping or chain binding.

On demonstration after demonstration, men who have used this clearing tool agree that here is positively the best thing yet.

Write for a free demonstration.

Manufacturers of Homelite  
Carryable Pumps • Generators  
Blowers • Chain Saws

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# Texas Builds Soil-Cement Widening—2 Miles a Day\*

## P&H Soil Stabilizer Processes 9,000 Sq. Yd. Daily With Perfect Control of Quality



Close-up of P&H Model LA-88 Single Pass Stabilizer processing soil-cement.

Texas State Highway 79, originally built in 1928-29, was recently modernized in record time for today's traffic needs.

State Highway Officials decided the old 18-ft. pavement should be widened to 24 ft., for a total of 17 miles. Low-cost and maximum use of local materials were musts. Low bidder among nine contractors was Austin Asphalt Company, Dallas.

### P&H Stabilizer Key to High Production

With the old shoulder soil removed to a 14-in. depth and an 8-ft. width on one side, 30 cu. yd. per station of crushed sandstone were dumped on



Behind the Stabilizer, two sheep's-foot rollers compacted the mixture.

the concrete pavement at regular intervals. This was bladed into the trench, watered and rolled for an 8-in. sub-base. Over this, 20 cu. yd. per station of crushed sandstone were placed to a 7-ft. width. Cement, for an 8% cement factor, was then spread, working no more than 1,000 ft. ahead of the P&H Soil Stabilizer as a guard against cement loss. Actually, this distance ahead was

rarely reached, though, because of the high mixing speed which the Stabilizer maintained.

### A More Stable, More Durable Base

Behind the cement spreader, the P&H Stabilizer pulverized the partially compacted sandstone, dry mixed it with cement, added the proper amount of water and deposited a uniform layer of soil-cement ready for immediate compaction.



Here curing seal is applied at the rate of 0.2 gallon per sq. yd.

Then, after curing, a 250 lb. hot-mix bituminous surface was placed over the old pavement and widening in two courses to complete modernization of this veteran road. The road was kept open to traffic throughout construction and the widening was opened to traffic as soon as the curing seal was blotted.

For more information on P&H "Single-Pass" Soil Stabilizers, write to C. R. Morgan Jr., P&H Soil Stabilizer Division, Harnischfeger Corporation, Milwaukee 46, Wisconsin.



Side view of P&H Model LA-88 Stabilizer. Only 1 man required to operate.

\* The following data is based on a January, 1955 presentation to the American Road Builders' Association Committee on Soil-Cement stabilization by Mr. A. D. January, Wichita Falls, Texas, Senior Resident Engineer of the Texas State Highway Dept.

# HARNISCHFEGER



**HEIL TELESCOPIC HOISTS**—Two new bulletins illustrate the construction features common to the two Heil Models 1715 and 1821 hydraulic hoists—one an 8- to 11-ton capacity, and the other 10 to 16 tons. Both bulletins may be obtained from **The Heil Co., Milwaukee 1, Wis.**

**WALL CHART**—A tell-at-a-glance wall chart furnishing condensed information on how end-welded studs of various shapes and sizes are used for fastening jobs in the construction field can now be obtained from the **Nelson Stud Welding Div., Gregory Industries, Inc., Lorain, Ohio.**

**NEW FRAME**—The Trouble Saver sectional steel scaffold has a new all-purpose frame with a built-in ladder. Made in 5 heights, 3 ft. 4 ft. 4 ft 6 in., 5 ft. and 6 ft 6 in. With frames, 5 ft. wide. Available with or without fast acting SlideLoks. Ask for Bulletin PSS-36, **Patent Scaffold Co., Inc., 38-21 12th St., Long Island City, N. Y.**

**MASONRY WATERPROOFING**—An illustrated guide to waterproofing and repairs of concrete with specifications, graphic descriptions of applications and a complete wall cross-section above and below grade showing proper applications—**Seddon Co., Dept. C-4, 1526 Wooster Rd., Cleveland 16, Ohio.**

**HEAVY EXCAVATOR**—An 8-p catalog illustrates the work capacity and applications of the new Koehring Model 405, a machine convertible to a 20-ton crane or 1-cu yd hoe or shovel. Included are descriptions of the self-cleaning and removable crawler assembly, unit constructed car body, automatic traction brakes, one-piece turntable, completely mechanical power clutches, skeleton-type drum lagging, full rotating fairlead and optional automatic power-boom lowering device. For copies of this bulletin write **Koehring Co., Milwaukee 16, Wis.**

**SAFETY EQUIPMENT** — A new catalog of industrial safety appliances is obtainable free from **E. D. Bullard Co., Dept. 531, 275 8th St., San Francisco, Calif.**

**CONVEYORS**—Two new folders provide information on construction conveyor applications. One describes the P-51 Overtrack Conveyor which is used to unload covered hopper cars and then discharge the contents into a conventional conveyor. The second bulletin describes the Andrews Portable Tubular Conveyor which is specially designed to handle materials such as cement, coal and limestone—**Andrews Machine Co., Decatur, Ill.**

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# HORSEPOWER

... a size and type  
for every need

Whether it's repowering old equipment or buying new — too much or too little horsepower can prove costly. Equally as important as proper horsepower, is correct engineering of the application. Quite often, it is necessary that engine accessories be mounted in accordance with requirements of the equipment. It usually takes a right size and right design to supply the specific power needs for each type of machinery.

The engineering and sales policy of Hercules Motors Corporation is to design and sell internal combustion engines to fulfill the specific needs of each customer. For example, in equipment with limited engine installation area, "flat" or horizontal engines are often the answer. These engines can be placed under floors, or in any area which does not permit vertical installation. (Consult factory for models available.) Special Hercules vertical engines with accessories located on one side, permit installations near a firewall or bulkhead which is permanent and does not allow access to one side of the engine. These are but a few of the many problems which are often encountered in the proper application of an engine.

Our basic line of Hercules engines, 70 models from 3 to 500 H.P., is designed and engineered to meet the exact and varying demands of industry. We build engines for operation on gasoline, diesel fuel, natural gas, L. P. Gas, kerosene, or any other standard fuel that is readily available. That's why we have been known as "Engine Manufacturing Specialists Since 1915"

If you'd like to know more about our engines, write for the folder "Hercules Engines". It lists the sizes and power ratings of each model. If, however, you have a specific power problem give us the details. Our engineers will work with you to solve your problems and of course, there is no obligation.

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HERCULES MOTORS CORPORATION

111 Eleventh Street, S. E. • Canton, Ohio



Hercules Model NXB  
2 cylinder gasoline engine  
15.6 H.P.



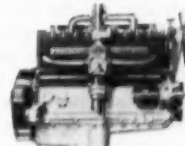
Hercules Model DODD  
4 cylinder diesel engine  
79 H.P.



Hercules Model JXD  
6 cylinder gasoline engine  
112 H.P.



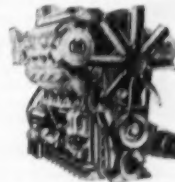
Hercules Model DIX6D  
6 cylinder diesel engine  
93 H.P.



Hercules Model HXE  
6 cylinder gasoline engine  
236 H.P.



Hercules Model DFXHF  
6 cylinder diesel engine  
260 H.P.

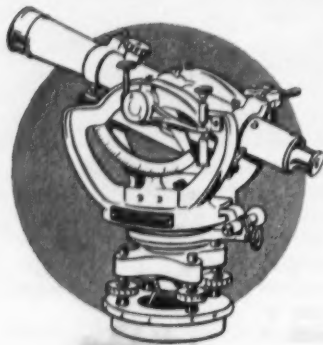


Hercules Model DNX-V8DTS  
8 cylinder diesel engine  
500 H.P.





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**BETHLEHEM LITERATURE**—Bethlehem Steel Co., Bethlehem, Pa., has just released two new booklets. One, 278-B, describes and illustrates the use of prefabricated dowel units and other concrete jointing material. The second, No. 599, describes the use of formed steel bridge flooring.

**TORQUE CONVERTER**—A descriptive folder shows three new models of torque converter couplings with performance and engineering data for various types of engine-driven industrial and materials-handling applications. The new models are the 12-T with SAE No. 3 housing for use with automotive clutch and mechanical transmission; the Model 12-U with 1½-in. 10-spline shaft for straight-line drives with universal joint; and the Model 12-H with flanged output shaft for industrial-type couplings. Obtainable from the Fuller Mfg. Co., Kalamazoo, Mich.

**ARMCO CONSTRUCTION PRODUCTS**—An 8-p illustrated bulletin covers the complete line of corrugated metal structures, welded pipe, steel sheeting, bridge plank, Steelox buildings, bin-type retaining walls and drainage structures. Copies are available from the Product Information Service, Armco Drainage and Metal Products, Inc., Middletown, Ohio.

**AIR COMPRESSOR**—A new bulletin describes the new LeRoi 85 cfm Airmaster. A cross-section view shows how the single cooling engine, one lubrication system, one crankcase and crankshaft simplify maintenance. Copies of this bulletin are available from the LeRoi Div., Westinghouse Air Brake Co., 1706 S. 68th St., Milwaukee 14, Wis.

**WIRE ROPE**—A catalog is available showing the complete line of MacWhyte Safe-Lok wire rope assemblies and fittings. Obtainable by addressing Form 5201, MacWhyte Co., Advertising Dept., Kenosha, Wis.

**SCRAPER-TRACTOR BUCKETS**—Bulletin 160 which has recently been published by the Sauerman Co., 620 S. 28th Ave., Bellwood, Ill., gives specifications and information for scraper and slackline buckets for tractors from 40 to 150 hp. Maximum spans, line speeds and capacities are also shown. Write Dept. C-30.

**STEAM CLEANER**—Malsbary's improved Model 250 High-Pressure Combination Cleaner with its exclusive patented pumping system and reverse blowdown for keeping coils free of scale, is described in a recent catalog. Also included are a cost comparison chart, an easy to follow operating chart and condensed specifications. Write for Catalog 250, Malsbary Mfg. Co., 845-92nd St., Oakland 3, Calif.

## Helping you solve today's toughest CONSTRUCTION PROBLEMS

The reference aid that helps you save time and money on construction jobs



With the construction work that lies ahead for every engineer, it is only up to you to assure yourself of superior workmanship—ensure your work of the finest structural qualities—by providing yourself with this revision of the famous Hool and Kinne Library—the books which for years have been providing structural engineers with the facts they need on every problem concerned with the design and construction of civil engineering structures.

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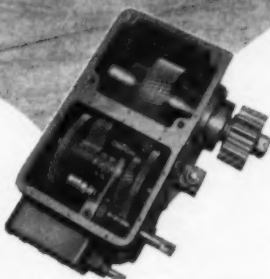
# SMITH

## Truck Mixers & Agitators



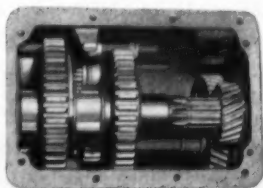
### with 2-SPEED Transmissions as STANDARD Equipment

#### on GEAR DRIVE Mixers



The finest transmission in any mixer. Foote Bros. aircraft specification, 2-speed transmission, helical cut gears and ground shafts heat-treated to 600 Brinell.

#### on CHAIN DRIVE Mixers



Clark heavy duty 2-speed transmission, equipped with special remote control shifting tower—maximum power in a minimum space.

Smith puts 2-speed transmissions in ALL Smith Truck Mixers because they help you to mix and discharge quality concrete...also lower your maintenance costs.

There is a minimum amount of mixing required to produce quality concrete — ASTM specifications say 50 revolutions — but there is also a maximum amount of mixing allowed. Without a 2-speed transmission, it is almost impossible to throttle down low enough to stay in the required mixing range on medium length hauls, much less on long hauls, and still have proper charging speeds available. If you agitate, there is never a case where you don't need the 2-speed transmission.

Discharge is affected by drum speed — especially with low slump concrete which is sticky and does not want to flow. A slow speed, from 3 to 5 r.p.m., usually works best. You can get this range of speed easily, and without laboring the engine, with the Smith 2-speed transmissions. This is also true for curb and gutter jobs and narrow form pours where absolute control is necessary.

Maintenance costs for the entire mixer are lowered because of the 2-speed transmission. The engine runs at an efficient speed, minimizing sludge and carbon formation. You turn the drum only as much as necessary. Fewer revolutions mean less wear.

Remember, there are over 20 sizes and styles of Smith Truck Mixers tailor-made to meet your individual needs . . . and they all have 2-speed transmissions as standard equipment. For complete details, contact your nearby Smith distributor or write:

**THE T. L. SMITH CO. • 2851 N. 32nd Street • Milwaukee 10, Wis., U. S. A.**

Affiliated with ESSICK MANUFACTURING CO., Los Angeles, California



*Builders of Better Mixers for More Than 50 Years*



Wagon drills, equipped with Bethlehem Hollow Drill Steel, removing sandstone near White Haven, Pa., for Northeast Extension of Pennsylvania Turnpike. Rods were made up and reconditioned by Howells Mining Drill Co., Plymouth, Pa.

## Removing Hard Sandstone for Turnpike Extension

One of the newest ventures in Pennsylvania's growing system of limited access highways is the Northeast Extension of the Pennsylvania Turnpike. Beginning at Plymouth Meeting, near Philadelphia, the new four-lane highway is to run northward through the anthracite region and the Pocono Mountain resort area.

The section of the new highway shown here, a 2.9-mile stretch near White Haven, called for the removal of approximately 500,000 cu yd of hard, abrasive sandstone. Using Bethlehem

Hollow Drill Steel exclusively, fitted with carbide-insert bits, the drilling crews used jackhammers and wagon drills to make blast holes 16 ft deep.

Bethlehem Hollow Drill Steel can always be counted on for steady, economical performance because it is rolled from a tough, fatigue-resisting steel. It has a wide quenching range, making it easy to heat-treat for the ideal balance of hardness and wear-resistance. Bethle-

hem Hollow also makes long-wearing threads and tough shanks. It's furnished in rounds, hexagons and quarter octagons, usually in lengths of 18 to 25 ft, though longer if specified. Any way you look at it, Bethlehem Hollow is the ideal steel for tough drilling jobs.

**BETHLEHEM STEEL COMPANY**  
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation



## BETHLEHEM HOLLOW DRILL STEEL



**CHAIN HOISTS**—An 8-p, two-color bulletin describing the spur gear hoists and trolleys distributed by the **Coffing Hoist Co., Danville, Ill.**, includes pictures, cutaway drawings, descriptions and specifications of the entire YC and YCT lines which comprise a total of 62 models and sizes from ¼- to 25-ton capacity.

**RUBBER PRODUCTS**—A 58-p general catalog on rubber products, including sections on belting, hose, packing and molded rubber products is now available for distribution. For copies write **Quaker Rubber Corp., Div. of H. K. Porter Co., Inc., Tacony and Comly St., Philadelphia 24, Pa.**

**OVERLAY HARD-FACING**—A new 4-p, two-color booklet describes the Model C Spraywelder and the Sprayweld process of metal powder overlay hard-facing. Address requests to the **Wall Colmonoy Corp., 19345 John R St., Detroit 3, Mich.**

**FORMING SYSTEM**—An 8-page catalog describing and illustrating the Symons forming system is now available. It provides illustrated examples of erecting and shipping advantages of the Symons forms and also shows their adaptability in the construction of battered walls, round tanks, reinforced high walls and mass production homes. The folder also gives detailed information about such supplementary equipment as shores, column clamps, bar ties and tie chairs. You can request this publication from the **Symons Clamp & Mfg. Co., 4249 Diversey Ave., Chicago, Ill.**

**WIRE ROPE RECOMMENDATIONS**—A booklet on the use of wire rope in contractors' equipment, explains wire-rope construction and gives information on its proper use in construction equipment. It is available to anyone using or interested in wire rope upon request to the **Macwhythe Co., Kenosha, Wis.**

**STARTING FLUID**—A portfolio describes the use and advantages of starting fluid packaged in an atomizing container. This fluid provides a readily ignited primer for those hard-to-start motors. Make your request to the **Spray Starting Fluid Co., P. O. Box 584, Camden 1, N. J.**

**TRUCK MIXERS**—A new bulletin presents complete information on Worthington's LC and LO concrete truck mixers, together with data on component parts such as transmissions, clutches, brakes, drum rollers and drive, drum head and blades. Illustrated diagrams and pictures of 3½-, 4½-, 5½- and 6½-cu yd Hi-Up mixers. Specify in your request, Bulletin 1260-B1 — **Worthington Corp., Harrison, N. J.**



## Saves 6 men, 4 tampers, 2 compressors and small dozer with one-man-operated "80-W"

**VAN DOREN BROTHERS** of Richmond, Virginia recently backfilled and compacted approximately two miles of trench, 2 feet wide and 4 feet deep, for a 6-inch gas line with just one man and one machine, a Cleveland "80-W" backfiller.

Before the Van Dorens purchased their "80-W" they used 7 men, a rubber-tired dozer, 2 compressors and 4 air-driven tampers for backfilling and compacting on jobs of similar size and type. The one-man-operated "80-W" did the complete job in less time than the 7-man crew formerly required on comparable jobs. "It's a great time saver," was F. M. Van Doren's comment on its performance.

On a previous job their Cleveland backfiller had saved them considerable time and money on a 12-inch water line trench, averaging approx-

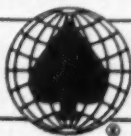
imately 6 feet deep, by its unique ability to backfill spoil deposited on a down slope on the far side of the trench, while simultaneously tamping it to the state of Virginia's rigid compaction specifications.

The "80-W" also does an outstanding job of side-crane work, lays pipe, pulls crossings, sets hydrants and valves, pulls sheathing, loads and unloads pipe, etc. Despite its ability to perform all these operations—and do an outstanding job on *each* of them—the "80-W" is easy to operate. The Van Dorens' operator learned to operate it with high efficiency after only two days training on the job.

Investigate this remarkable time, labor and machinery saving tool now—so that you, too, can realize its outstanding benefits on your next job.

See your local distributor for the full Cleveland story or write direct to:

**THE CLEVELAND TRENCHER COMPANY • 20100 St. Clair Ave., Cleveland 17, Ohio**

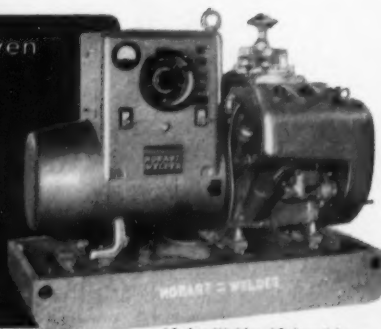


# CLEVELAND



## Air-Cooled Engine Driven Combination **Arc Welder and Power Plant**

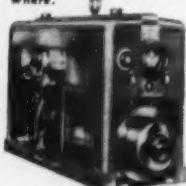
Power for tools, lights and  
arc welding ANYWHERE!



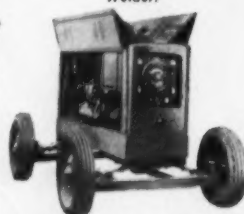
Speed up your work and cut welding costs with this revolutionary new type of Hobart combination unit. Hobart's ingenious generator design lets a single generator and air-cooled gas engine provide power—either for welding or 110/220-volt power, all at the press of a button. Surprisingly compact and lightweight for easy moving. Can be mounted on truck or trailer—ready on a moment's notice.

And don't forget, Hobart has a type and size gas drive arc welder for every construction job—large or small. "Contractor Special" is a full capacity 250-ampere DC welder, yet compact and lightweight for easy moving from job to job. For extra heavy duty welding Hobart offers DC Gas Drive Welders ranging up to 600-ampere capacity.

AC Arc Welder-AC Stand-by Power Unit. Power for tools, lights and arc welding anywhere.



"Contractor Special" Arc Welder.



Gas Drive DC Arc Welder.

### **HOBART** TRQT OHIO **WELDERS**

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Without obligation, please send information on items checked.

- ☐ AC Arc Welder-AC Power Unit ☐ "Contractor Special"  
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**Tilt-Top!**



Miller's big broad oak decked platform assures the safety of operator and equipment every time you load! Saves time, too ... there's no need to bother with special skids, cribbing or jacks. ONE man simply drives on or off the tilted platform. Total time, less than two minutes! Whatever you haul ... dozers, trenchers, rollers or other heavy equipment, there's a MILLER TILT-TOP to do your between-job hauling faster, safer and at less cost! See your MILLER distributor today!

Heavy D-4 dozer being loaded on Model "B" 10 ton TILT-TOP built upon the new, massive "EDG-SUPPORT" frame, now standard on all MILLER TILT-TOPS.

✓ **built best**  
✓ **priced best**

See your MILLER distributor  
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**MILLER**  
research engineers



457 S. 92nd Street, Milwaukee, Wis.

**CLAMSHELL BUCKETS** — A 4-p bulletin, H-1954, illustrates the complete line of Haiss Multi-Sheave buckets, including the 1/4- and 1/3-cu yd trenching models, in addition to the general purpose and high power digging buckets. Address requests to the Geo. Haiss Mfg. Co., 350 Fifth Ave., New York 1, N. Y.

**ASPHALT PLANTS**—A 16-p catalog describes the RB line of asphalt plants and accessories, showing layouts, flow charts and complete data on major parts, together with descriptions of designs for mobile plants—Standard Steel Co., 5001 S. Boyle St., Los Angeles 58, Calif.

**ATLAS CATALOG**—A new 12-p booklet illustrating Atlas-Copco equipment for mining and construction purposes shows product coverage from rock drills to air hoists. Details and photos are given of the 13 models of Atlas compressors, including the NT-9-MV portable with air-cooled diesel engine. Request booklet CP-65 from Copco Pacific Ltd., 930 Brittan Ave., San Carlos, Calif.

**RUST PREVENTIVES** — The 1955 catalog furnishes complete instructions for surface preparation and application of primers, sealers, floor and masonry coatings and finishes of all types. Among the new products described are a "Restful Color Group" of finishes for plant interiors and machinery and a long-nap wool roller that reaches around wire fences coating one side and approximately 70% of the other side at the same time. It's free from the Rust-Oleum Corp., 2799 Oakton St., Evanston, Ill.

**CATERPILLAR LITERATURE** — Four recent interesting and informative booklets are available from the Caterpillar Tractor Co., Peoria, Ill.

*Successful Bids* (Form DE 502) shows how to cut costs and plan more profitable earthmoving jobs.

*The Cat WD20* (Form No. DE478) is a new illustrated booklet about the already well-known DW20 Tractor. It gives equipment specifications and production figures from two typical jobs.

*When Construction Men Agree* (Form No. D489), pictorially reviews the part played by eight contractors using Cat equipment in the construction of flood-control projects on the tributaries of the Kansas River.

*Let Your Diesel Live* (Form No. 12440) contains the story of lubricating oils and how these oils affect the owner or prospective purchaser of a Caterpillar Engine.

# 100 tons of limestone and flint rock per hour on this job . . .

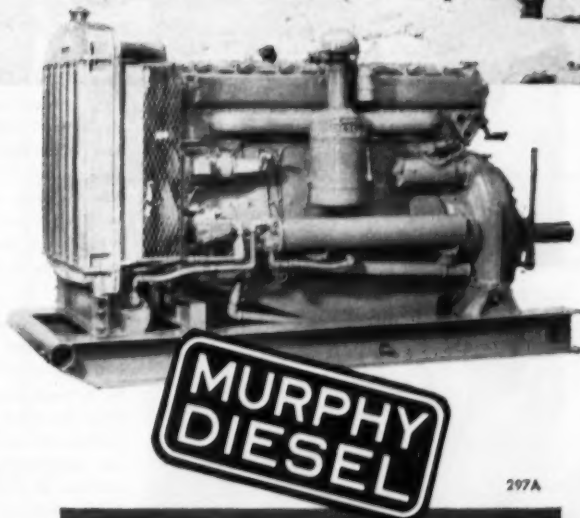


## using MURPHY DIESEL POWER all the way

● From this Kansas pit, W. O. Homer of Junction City, Kansas, is turning out 100 tons of limestone and flint per hour, with flint accounting for about 20% of the total. Mr. Homer is doing this job with a Murphy Diesel powered Northwest shovel and a Murphy Diesel powered Universal portable crushing plant. So it's Murphy Diesel all the way on this job.

If you're looking for dependable output at maximum operating economy, profit by the experience of pit and quarry operators everywhere, and put Murphy Diesel power to work for you. It's your best bet for getting the most rock per gallon of fuel and you'll particularly like the trouble-free service and freedom from costly downtime.

Talk over your requirements with your Murphy Diesel Dealer and ask him to show you what Murphy Diesel power can do for you.



297A

## MURPHY DIESEL COMPANY

5339 W. Burnham Street  
Milwaukee 14, Wisconsin

Sales, parts, service throughout the nation

### *Heavy duty power* for rock crushing

Murphy Diesel Engines and Power Units are available in sizes from 90 to 240 H.P. Engine speeds are 1200 and 1400 rpm. "Packaged" generating units are available with capacities ranging from 60 to 154 K.W.

## Best way to achieve SPECIFIED DENSITY in



**ROCK, SLAG,  
SOIL-BOUND  
MACADAM,  
GRAVEL and  
SAND BASE  
COURSES**

*use...*

## **JACKSON VIBRATORY COMPACTORS!**



On jobs such as this, soil-bound macadam—5 inches thick, the JACKSON MULTIPLE COMPACTOR, now more powerful than ever, achieves specified density in **JUST ONE PASS**. It is equally efficient on rock, or slag base and all other granular soils.

Quickly adaptable to widening, the JACKSON MULTIPLE COMPACTOR is shown here consolidating slag macadam base course 36 inches wide and 9 inches thick. Using three of the machine's powerful compactor units in tandem, it readily obtains specified density in **ONE PASS**.



Twin hook-up of manually guided JACKSON COMPACTORS consolidating gravel base for a large pavement repair area. These machines, used singly or in tandem, or side-by-side twin hook-ups, are exceedingly efficient for all types of granular soil base and fill compaction; also for bituminous patching and driveway construction. Operated from a trailer-mounted JACKSON POWER PLANT which may also be used for other power tools and lights.

*See*

your Jackson Distributor or write to us for complete information on these machines.

**JACKSON VIBRATORS, INC.** LUDINGTON, MICH., U.S.A.

## LABOR . . . Continued from page 177

Finally, the amendment would place enforcement in the Department of Labor rather than with the various contracting agencies, as under the present law. The Secretary of Labor would be authorized to make investigations, interview such employees as deemed necessary, examine payroll records, etc. Contractors found in violation would be subject to severe penalties.

The third labor law given special consideration at the conference was, of course, the Taft-Hartley Act. The amendments supported by the Department are contained in S. 1269 and contain changes that are in part supported by the Administration (CM&E Feb. p. 130). However, this bill includes the elimination of Section 14 (b) which makes it possible for state "right to work" laws to take precedence over the union shop provisions of the federal statute. Union circles have long maintained that Section 14 (b) of the Taft-Hartley Act is the only provision in any federal law that permits state laws to take precedence.

### Taft-Hartley Changes

While it is doubtful that any changes to the Taft-Hartley Act will be adopted during this session of Congress, it is possible that some of the changes proposed in the Davis-Bacon Act and the Eight Hour Law will be enacted. Many of these changes have the backing of Secretary of Labor Mitchell, as well as a number of Republican members of the labor committees in both the House and Senate.

**MEL ONHEAD**  
*There's one  
on every Job!*





# Wolverine Contractors know how to get more work out of equipment—use **STANOLUBE HD-M Motor Oil**



Norris Host (right), President of Wolverine Contractors, Inc., and Robert Larsen, Standard Oil automotive lubrication specialist, talk lubrication on job site. Customers of Bob's like to talk lubrication with him. They know it can pay off for them in better, lower cost operation of equipment. Bob's seven years' service with Standard Oil gives him a solid background of experience for this sort of work.

Wolverine Contractors, Inc., Detroit, know that good maintenance begins with good motor oil. They have used STANOLUBE HD-M Motor Oil for many years in both gasoline and diesel equipment. On overhauls, engines come down clean and free of sludge. These are the reasons STANOLUBE HD-M delivers this clean, sludge-free performance:

- |   |   |
|---|---|
| 1 | STANOLUBE HD-M Motor Oil is refined from high quality base stock.   |
| 2 | Additives exclusive with STANOLUBE HD-M retard oxidation of the oil, reduce formation of piston and ring belt deposits. |
| 3 | These additives in STANOLUBE HD-M prevent fuel from forming varnish and sludge.   |

STANOLUBE HD-M makes the maintenance job easier for maintenance men by: extending periods between overhaul; making the overhaul job easier when it is done; reducing wear and eliminating corrosion of bearing metals. STANOLUBE HD-M Motor Oil makes the construction job more profitable for the contractor by helping him get more operating hours out of equipment.

Get the facts about STANOLUBE HD-M Motor Oil. Get in touch with your Standard Oil automotive engineer. In the Midwest call your nearby Standard Oil office. Or contact Standard Oil Company, 910 South Michigan Avenue, Chicago 80, Illinois.

Dozer helps with grading on Wolverine Contractor project. As with all equipment Wolverine operates, this dozer gets Standard Oil lubrication exclusively.



**STANDARD OIL COMPANY**  
(Indiana)

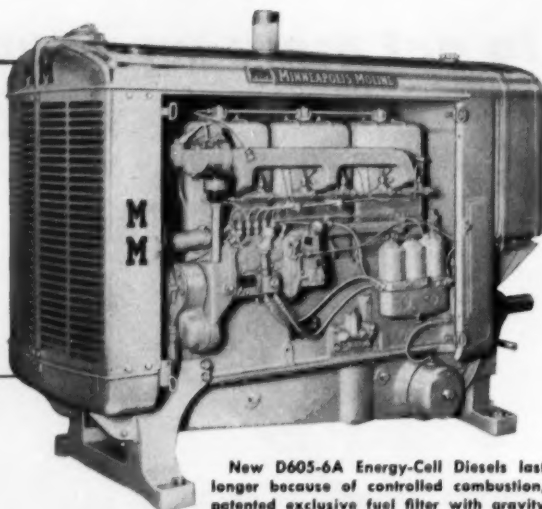




# WHY IT PAYS TO OWN INDUSTRIAL DIESELS WITH REMOVABLE CYLINDER BLOCKS AND HEADS

New MM diesels were developed with *energy-cells* to make them last longer, do more and go farther with less down-time and maintenance.

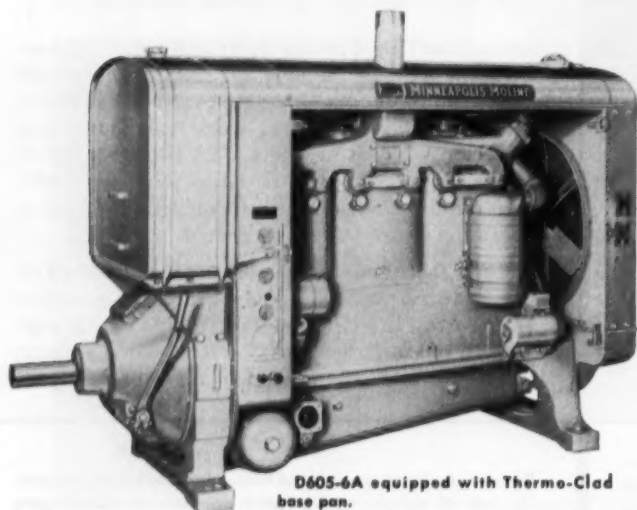
To provide owners with lower cost maintenance when necessary MM diesels are the most advanced and soundly engineered because the cylinder blocks are cast in pairs separate from the crankcase.



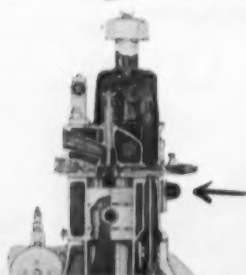
New D605-6A Energy-Cell Diesels last longer because of controlled combustion, patented exclusive fuel filter with gravity and by-pass features, self-cleaning pintle type nozzle, directed cooling of area around combustion chambers.

## YOU GET THESE ADDED ADVANTAGES . . .

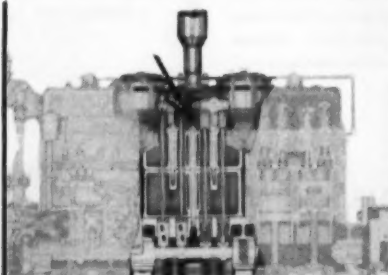
1. Ease of maintenance and low cost emergency service because paired cylinder blocks, pistons, and rods can be removed as a unit by one man.
2. Prolonged time between overhauls by use of close-grain cast iron that provides best cylinder lubrication for reduced wear.
3. Less service due to minimum distortion as MM cylinder heads, cylinder blocks and crankcase are virtually strapped together by full-length steel studs anchored in the main bearing bulkheads. (Transmits combustion pressure to heavy crankcase that has extra depth below center line of crankshaft.)
4. Efficient operation obtained by uniform cylinder expansion . . . the result of controlled cooling and long oil-cooled cylinder wall skirts below ring travel area.
5. "New engine" performance at extremely nominal cost can be obtained right in the field without special tools using factory matched cylinder blocks, pistons, pins, and rings. (Blocks are dowelled to crankcase to assure bore is square with crankshaft and pistons are precision fit to bore . . . equivalent to a factory job.)
6. Lower initial cost stems from high production parts by casting cylinder blocks in pairs separate from the crankcase.



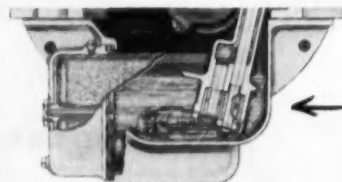
D605-6A equipped with Thermo-Clad base pan.



1. Cylinder head and block assembly shows coolant entrance at hottest point first and extra long skirt wall construction.



2. Close-up of how MM cylinder heads and blocks and crankcase are tied into a single rigid unit with long studs.



3. A D283 feature is extra large oil filter enclosed in base pan, floating-screen oil pump intake, and pump located in bottom of base pan.

Optional Thermo-clad water-blanketed base pans for all units also have oil filter included to give more effective filtering.



**MINNEAPOLIS-MOLINE**  
MINNEAPOLIS 1, MINNESOTA

## HOW TO HANDLE WET JOBS

### ST REGIS KRAFT CORP PUMP HOUSE Eastport, Florida

Contractor: Merritt-Chapman & Scott



#### WITH OPEN PUMPING, BOTTOM ROSE 6 INCHES OVERNIGHT

THIS EXCAVATION, 25 ft from Broward River, was planned with steel cofferdam plus ordinary open pumping. But, on reaching subgrade at elevation -12, several very heavy boils were noted and bottom did, in fact, rise 6 inches that same night.

• Like others who have once tried the Griffin "quick-dry" method, this leading contractor called for it again. Soil was tricky—very fine sand with intermediate layer of river muck. Yet Griffin Wellpoint system took only 48 hrs to end all boiling action, give dry stable subgrade and write a good concluding sentence to the story: "Job completed on schedule."

## GRIFFIN

### WELLPOINT CORP.

881 East 141st Street, New York 54, N. Y.  
Hammond, Ind. Houston, Tex. Jacksonville, Fla.

In Canada: Construction Equipment Co., Ltd.  
Toronto Montreal Halifax

## BIG JOBS OF THE MONTH . . .

Continued from page 30

Work, Childersburg, Ala. for Department of the Army, Ordnance Depot, Pentagon Bldg., Washington, D.C. \$37,600,000.

**J. Rich Steers Co.**, 17 Battery Place, New York 4. Construction of Pier A, Hoboken-Port Authority Piers at Hoboken, N. J., for The Port of New York Authority, 111 8th Ave., New York 11. \$5,376,375.

**Babcock & Wilcox Co.**, 161 E. 42nd St. New York. Atomic electric power plant at Indian Point, Peekskill, N.Y., for Consolidated Edison Co. of New York, 4 Irving Place, New York City. \$30,000,000-\$40,000,000.

**Thomas D. Nolan**, 4017 S. Brook St., Louisville, Ky. Sewerage collection system improvements, lift stations, force mains, sewage treatment plant and outfall within limits of North Miami, Fla. for City, City Hall, North Miami, Fla. \$3,575,424.

**Western Contracting Co.**, 400 Benson Blvd., Sioux City, Iowa. Earthwork, Stage IV, Oahe Reservoir project near Pierre, S.D. for U. S. Engineers, 1709 Jackson St., Omaha, Neb. \$5,098,188.

**C. W. Blakeslee & Sons Inc.** 58 Waverley St., New Haven, Conn. Tunnel, dam and pipe line from Hammonasset River Reservoir to North Guilford, New Haven, Conn. for the New Haven Water Co., New Haven, Conn. \$8,000,000.

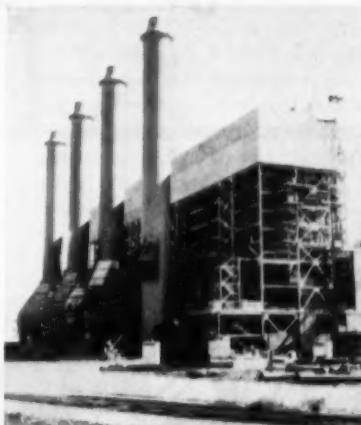
**Samuel Seyburn**, 15624 Fenkell St., Detroit, Mich. Redevelop 1,650 acre project, about 5,000 homes, at Willow Run, Mich., for Willow Development Co., 2946 Penobscot Bldg., Detroit, Mich. \$50,000,000-\$65,000,000.

**Taylor Construction Co.**, 2875 N. Le Jeune Road, Miami, Fla. 14-story reinforced concrete Beau Rivage Hotel at Miami Beach, Fla. for the 4525 Collins Ave. Corp., 1 Lincoln Road, Miami Beach. \$3,500,000.

**R. K. & A. Jones, Inc.**, 7129 Olive Blvd., University City 24, Mo. Shopping Center, including 25 stores, supermarket, department, drug, etc. parking area, group of homes on 53-acre tract in St. Louis County, Mo. Louis C. Lochmoeller, promotional agent, 4733 Natural Bridge Ave., St. Louis 15, Mo. \$5,000,000.

(More Big Jobs on next page)

## LAYKOLD WEATHERCOAT protects insulation on \$75,000,000 steam plant



FOUR-INCH magnesia block insulation was specified for exposed boiler areas, ducts, and breechings on the recently completed 600,000 kilowatt steam plant of Pacific Gas and Electric Company at Pittsburg, California. Laykold Weathercoat was used as the protective coating for this insulation.

**Replaces canvas cover**—Original specifications called for a canvas covering applied with adhesive over the magnesia blocks, but Laykold Weathercoat was used when failure of the canvas covering was experienced at another plant. Laykold Weathercoat provides a tough, resilient coating that withstands both vibration and weathering.

Applied cold by industrial-type spray equipment (or trowel), Weathercoat gives lasting protection.

Write for full details.

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COMPANY**

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**Attention:  
Bucket  
Loader  
Owners!  
Users!**



FROM THIS..



TO THIS!

**A low-cost  
Greer  
Accumulator  
makes  
the big  
difference!**

**New Hydraulic Component Ends Damage from Shock and Vibration — Helps Your Bucket Loader Operate at Top Speed!**

Shock and vibration is common to all hydraulically operated bucket loaders. This condition occurs when a loaded bucket is moved and stopped suddenly, or travels over rough ground. Since hydraulic fluid is practically incompressible, the vehicle and driver absorb the full impact and pounding. The answer to this problem lies in the Greer Accumulator and its tremendous ability to absorb shock and vibration. In test after test with all types of bucket loaders, this fact was proven: you actually *see* and *feel* the big difference with the shock-absorber action of the Greer Accumulator. Install it now and benefit these important ways:

**Get Faster, Smoother Operation!** Greer Accumulator smooths out loader performance for greater on-the-job speed. Work goes faster, no slowdowns.

**Cut Downtime and Maintenance!** Shock that damages components and causes structural strain is eliminated. Parts last longer, perform better, too.

**Step Up Operator Output!** Your driver is free from the tiring effects of heavy shock and vibration. It adds to his comfort, safety and efficiency.

Learn how a simple pipe-tee and hose connects Greer Accumulator to system quickly, easily, and at low cost. Call or write your dealer for brochure.

**GET ALL THE FACTS TODAY!  
SEE YOUR LOADER DEALER!**

Manufactured by Greer Hydraulics Inc. • Jamaica 30, New York



U.S. Patents  
under Other Licenses

**Be sure your  
next bucket loader  
is equipped  
with one!**

**BIG JOBS FOR THE MONTH . . .**

*Continued*

**Nello L. Teer**, Box 1131, Durham, N.C. Grading, drainage, widening, resurfacing 4.896 mi on U.S. 13 near Princess Anne, Md. for State Roads Comm., 108 E. Lexington St., Baltimore 2, Md. \$1,339,576.

**O. W. Burke Co.**, 1032 Fisher Bldg., Detroit, Mich. Sewage treatment plant at Detroit, Mich. for Board of Water Commissioners, Water Board Bldg., 735 Randolph St., Detroit 26, Mich. \$2,248,000.

**Baldwin - Lima - Hamilton Corp.**, Eddystone, Pa. Fabrication, erection of superstructure, steelwork for East Viaduct extending from its west abutment to Pier 1 of West Viaduct north of Grant St. in Jersey City, Hudson Co., for New Jersey Turnpike Authority, Administration Bldg., New Brunswick, N. J. \$3,576,806.

**Boh Brothers Construction Co.**, 2400 Cypress St., New Orleans, La. Industrial Canal Bridge over Inner Harbor Navigation Canal at North Claiborne Ave., in New Orleans for Louisiana State Highway Dept., Highway Office Bldg., Baton Rouge, La. \$4,145,953.

**Walsh Construction Co.**, 122 E. 42nd St., New York 17, N.Y. New York State Thruway, Niagara Section, for Bureau of Contracts & Accounts, The Governor Alfred E. Smith Bldg., Albany, N.Y. \$6,491,760.

**Daniel O'Connell's Sons, Inc.**, 480 Hampden St., Holyoke, Mass. Manham Dam on west branch of Manham River, Southhampton, Holyoke, for the Board of Water Commissioners, City Hall, Holyoke, Mass. \$2,990,000.

**Cramer Vollmerhausen Co., Inc.**, 1919 Kenilworth Ave., Bladensburg, Md. Dalecarlia Pumping station, 5900 MacArthur Blvd., Washington, D.C., for U. S. Engineers, First & Douglas Sts., N.W., Washington 25. \$3,919,759.

**Caye Construction Co.**, 356 Fulton St., Brooklyn, N.Y. Structures and equipment for construction of Oakwood Beach pollution control project, Richmond Borough, New York, for Department of Public Works, Municipal Building, New York 7, N.Y. \$3,552,733.



# More "Big Machine" Features

on the **MICHIGAN C-16**

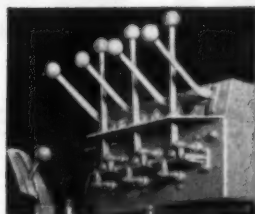
than on any other 1/2-yard crawler!



This is a fact: more "big machine" features are standard equipment on the MICHIGAN C-16 than on any other 1/2-yard crawler. It will pay you to look underneath — look inside to see how much more you get for your money.

This machine is built for quality-conscious users—for bigger yardage, bigger tonnage, and substantially lower maintenance. The C-16 invites a feature-by-feature comparison with other same-capacity machines.

Write for detailed literature on this 1/2-yard crawler with big machine features and durability. Or contact your local MICHIGAN distributor. Like all MICHIGAN machines, the C-16 is available on a low-cost Lease Plan—details available.



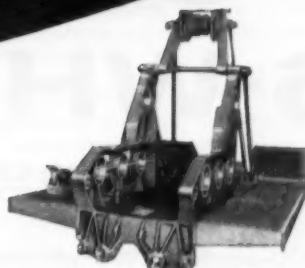
## Power Control Independent Travel

Air Controls are standard on all MICHIGANs . . . fast, smooth, precise, with low operator fatigue. Independent Travel is also standard . . . move up while hoisting, swinging, or dumping.



## Six Hook Rollers

You can swing the boom just by leaning against it. There are 6 ball bearing-mounted adjustable hook rollers on the C-16 . . . grease twice a year. Most other 1/2-yd machines have only 3 or 4 rollers, bushing-mounted.



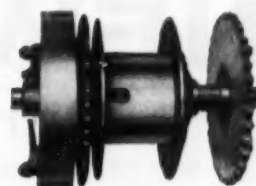
## Cast Steel Deck

This feature is usually found only on 1-yd or larger machines. C-16 deck is one-piece, alloy steel casting . . . side frames, boom foot lugs and roller brackets are cast integral. No misalignment!



## Smooth Clutches

There's nothing smoother than MICHIGAN air-operated segmented disc clutches . . . and they are self-compensating for heat, self-ventilating and self-cleaning. All segments are interchangeable.



## Power Load-Lowering

Four shafts on the C-16: Swing, Hoist, Travel and Crowd . . . each with its independent clutches. For precision crane work, the hoist line can be reeved on the front drum to provide Power-Up and Power-Down.



## Cast Steel Car-Body

Circle gear, with hook roller paths, internal gear teeth, center post, and crawler drive gear case is cast integral. Standard alloy steel tracks are 20" wide, 9'10" long. Swamp pads are optional: 30" wide, 11'10" long.

**CLARK  
EQUIPMENT**

CLARK EQUIPMENT COMPANY, 380 Second Street, Benton Harbor, Michigan.

Construction Machinery Division

Phone: WA 6-6184

Name \_\_\_\_\_

Firm \_\_\_\_\_

Please send literature:

☐ C-16 Detailed Bulletin

☐ MICHIGAN Lease Plan Bulletin

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State \_\_\_\_\_

(29A)





# NEW 6-WHEELER

with cost-cutting ruggedness

**This new INTERNATIONAL 60,000-pound GVW 6-wheeler** has what it takes for rugged construction work. It's built to absorb severe loading shocks—with ability to transport heavy equipment over-the-road at maximum safe speeds.

In this model RF-230 you'll find the all-new INTERNATIONAL 212-hp. Royal Red Diamond 501 engine which delivers 444 lb-ft torque at 1600 rpm. And there are other features of extra value including hydraulic full-power steering, 12-volt electrical system. Engine and all components are exactly matched to assure maximum operating economy, minimum maintenance and long life.

This newest INTERNATIONAL is Tough-Job engineered like all INTERNATIONALS—has all the performance, strength and stamina qualities that have made INTERNATIONAL the 6-wheel sales leader for 20 straight years. One of ninety-two 6-wheel models for every 6-wheel job. Get full facts from your INTERNATIONAL Dealer or Branch.

**INTERNATIONAL HARVESTER COMPANY • CHICAGO**

## AMERICA'S MOST COMPLETE 6-WHEEL LINE

92 models from 22,000 to 90,000 pounds GVW, in conventional and cab-over-engine designs, for highway and off-highway use.

All heavy-duty engineered, with wheelbases, transmissions, and axle ratios for every need. Engines from 130 to 356 horsepower. Choice of gasoline or LPG fuel system. Diesel engines available in models with GVW ratings of 30,000 pounds and over.

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# INTERNATIONAL TRUCKS

"Standard of the Highway"

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## For STRUCTURAL STEEL FRAMING

# Build Faster... Build Better...

## with HIGH STRENGTH

# BOLTS and MIL-CARB\* Carburized WASHERS

\*Trademark



## NO BOLT IS ANY BETTER THAN ITS WASHERS

According to leading authorities in modern Structural Steel Framing Practice, high tensile steel bolting of joints instead of riveting, offers erecting contractors and owners of such structures a number of definite advantages:

- A bolted building or bridge can be completed sooner than a riveted structure.
- Hardened steel bolts, with hardened washers, can be torqued up to produce a greater clamping force than cooling of rivets can produce.
- High strength bolts of the same diameter may be substituted for rivets without reduction in size of holes.
- Your labor problem is simplified because of complete independence of field riveters.
- Bolted Construction is QUIET — especially desirable for building new wings to hospitals or for construction in "quiet zones".
- High Strength Bolts have higher strength than comparable rivets.
- High Strength Bolted Joints provide 25% higher fatigue resistance than comparable rivet joints.
- Bolted Construction is economical due to lower cost of structural jointing.

Build better and faster with High Strength Bolting of structural steel joints ... but remember that NO BOLT IS ANY BETTER THAN ITS WASHERS.

MIL-CARB Carburized Washers are fabricated from Prime Carburizing Quality Special Soundness Steel, insuring uniform quality control, always equal to the rigid specifications (ASTM Designations: A325, applying to nuts, bolts and washers).

MIL-CARB Washers overcome inherent weaknesses often present in heat-treated washers fabricated from steel of questionable quality.

For uniformly sound construction,  
specify MIL-CARB Carburized Washers.

Distributed by Leading Bolt Manufacturers and  
**U. S. STEEL SUPPLY DIVISION**  
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208 South La Salle Street • Chicago 4, Illinois

**WROUGHT WASHER  
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The World's Largest Producer of Washers

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The World Over!

## LUFKIN CHROME CLAD

### Steel Tapes and Tape Rules



#### REGULAR MEZURALL

1/8" wide Chrome Clad blade in balanced mechanism—will not creep when extended. Self-adjusting end hook for hook-over or butt-end measurements. Markings in consecutive inches to 16ths both edges. 6, 8, 10 and 12 foot lengths.



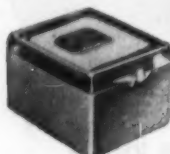
#### SUPER MEZURALL

Rugged 3/8" line extends farther unsupported. Diamond-shaped mark every 16" for easy rafter and stud spacing. Upper edge of line graduated feet and inches to 16ths, lower edge graduated consecutive inches to 16ths. Extra-long self-adjusting end hook. Case made of strong, featherweight magnesium alloy. 10 and 12 foot lengths.



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3/8" wide tempered steel line stays easy to read. Attractive case covered in durable moroon vinyl. Welded steel liner protected by a rust-resistant coating. Graduated feet, inches and 8ths. Available with regular or hook type end ring. 25, 50, 75 and 100 foot lengths.



360

**FREE "SEE THRU" BOX**  
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**CHROME CLAD TAPE LINES** are durable, do not surface crack, chip or peel and are rust and corrosion resistant. Jet black markings bonded to the line are protected by multiple electroplatings—they won't wear off and are always sharp and clear against the chrome white finish.

**BUY LUFKIN TAPES • RULES • PRECISION TOOLS AT YOUR HARDWARE OR TOOL STORE**

**THE LUFKIN RULE CO., Saginaw, Mich.  
Barrie, Ont.**



**Do you KNOW  
when to change  
oil and filters...  
to lubricate or  
overhaul?**



### ON-TIME MAINTENANCE REDUCES DOWN TIME EXPENSE

**HOBBS HOUR METERS** tell you at a glance when protective maintenance is due—the essential services that lengthen the life of your equipment and reduce repairs.

#### Not a Revolution Counter

The **HOBBS HOUR METER** is an electric timing instrument that shows **HOURS** and **MINUTES** of engine operation—important accuracy that no revolution counter can provide. It records running time on all types of powered equipment—stationary or mobile... gasoline or Diesel.

#### Approved by Leading Manufacturers

Installed as original equipment or recommended as an approved accessory by leading construction equipment manufacturers. Ruggedly built... easy to install. See your factory branch, representative or distributor... or **WRITE:**



### HOBBS Engine Hour METERS

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through continuing  
engineering research*

**John W. Hobbs Corporation**  
2070 YALE BLVD. SPRINGFIELD, ILLINOIS  
World's Largest Builders of Running Time Meters

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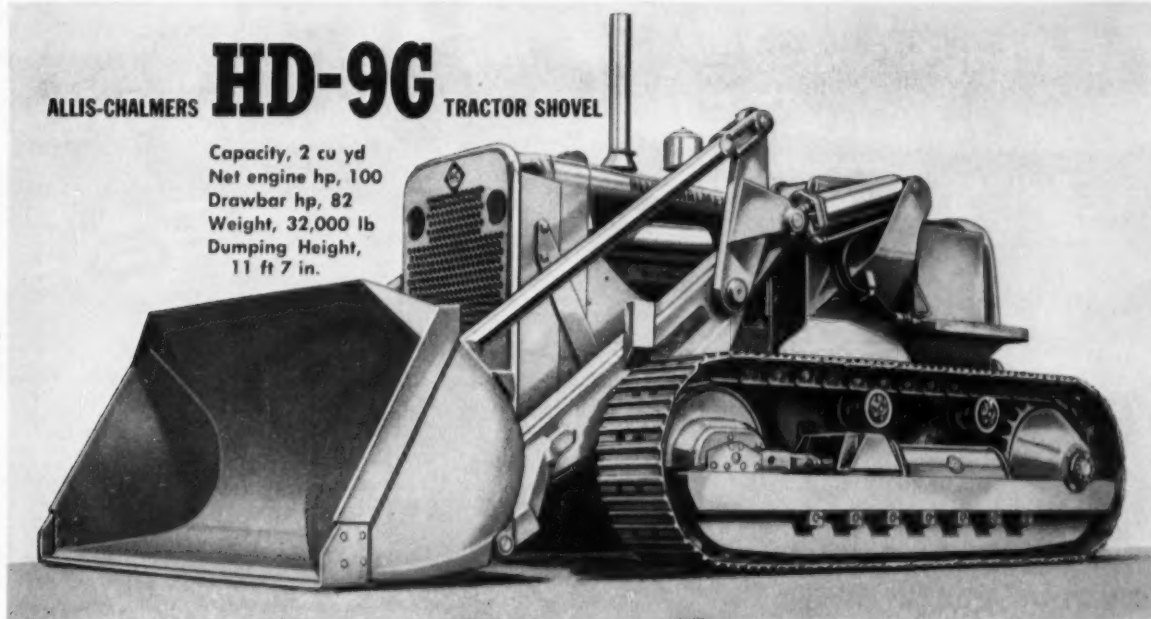


ALLIS-CHALMERS

# HD-9G

TRACTOR SHOVEL

Capacity, 2 cu yd  
Net engine hp, 100  
Drawbar hp, 82  
Weight, 32,000 lb  
Dumping Height,  
11 ft 7 in.

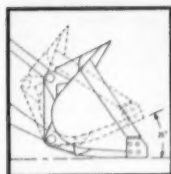


## POPULAR 2-YD HD-9G TRACTOR SHOVEL NOW OFFERS

### Higher Work Capacity

Design refinements in the Allis-Chalmers HD-9G now make it even more productive than ever. First, the net engine output has been increased to 100 hp, with 23,000 lb of push for extra crowding and digging ability, fast work cycles.

Streamlined bucket design now helps roll in large loads with less tractor effort. The back of the bucket has been brought forward and the sides extended to cut spillage, put more pay load where it's wanted. Cleaner dumping with the new bucket saves the operator time and effort shaking out loads.



Tip-Back bucket can be carried lower to the ground for greater stability . . . can load bulky objects easier.

New-type ceramic master clutch lining reduces lever pull, makes it easier for the operator to do more. The new HD-9G helps the operator do more in other ways, too — giving him full vision, fast and easy control, cleaner platform and more comfortable seat from which to work, and more working time with truck wheels, support rollers and idlers that need greasing only once every 1,000 hours.

A new addition to the wide variety of attachments available for the HD-9G Tractor Shovel is the Tip-Back bucket which allows the operator to roll the bucket back approximately 25° at ground level. Ideal for handling greater capacities of loose stockpiled materials, the

### Lower Operating Cost

Design improvements also add longer life to the HD-9G under all work conditions. Heavy box-section booms are 50 percent stronger, assuring proper alignment even working in the toughest materials. The low design of the new HD-9G combination stabilizer and cowl not only offers easy accessibility for maintenance and service, but contributes to maximum operator vision. New ceramic master clutch lining operates longer between adjustments, increases clutch life.

Hydraulic system provides new maintenance simplicity, safety of operation, as well as improved visibility. With new-style tank, there are few external fittings, greatly reducing possibility of outside leaks. Magnetic filters and suction-line screens protect the entire system from damaging grit. New, improved hydraulic pump is designed for long life as well as fast and accurate bucket action.

Heavy-duty truck wheels and idlers are available for particularly tough working conditions. One-piece, full-length main frame permits unit construction so that major assemblies can be removed without disturbing adjacent units, putting tractor back on the job in hours rather than days.

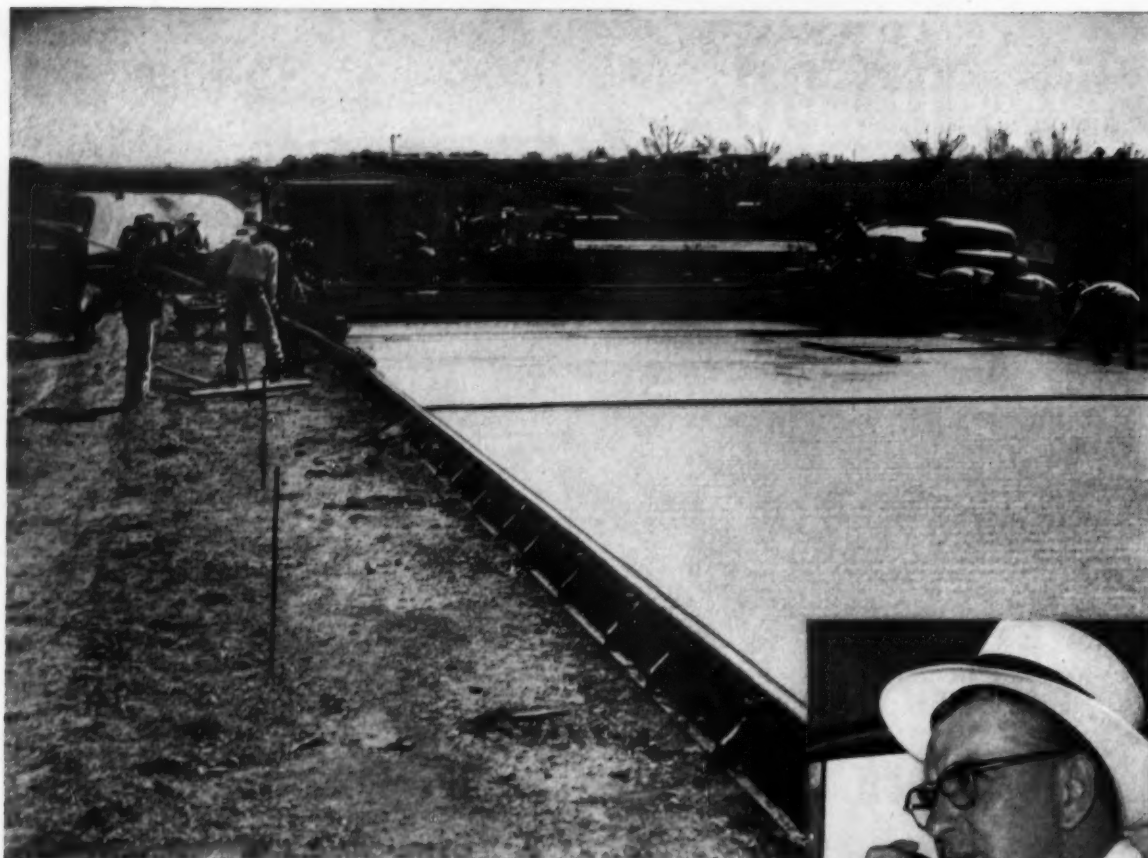


See your Allis-Chalmers dealer for further information on what the HD-9G can do for you — or a demonstration right on your job.

# ALLIS-CHALMERS

TRACTOR DIVISION — MILWAUKEE 1, U. S. A.





## 7 REASONS FOR G-E 2-WAY RADIO

- ★ Control field operations
- ★ Expedite and improve customer service
- ★ Save time
- ★ Coordinate vehicle dispatching
- ★ Increase efficiency
- ★ Lower costs
- ★ Cut idle time



A superintendent maintains constant touch with construction headquarters via General Electric 2-way radio . . . and at the same time supervises numerous on-the-job operations.

**T**HE importance of 2-way radio to you *for any reason* is actually a point in favor of selecting G-E equipment! Radio saves you money. Don't lose this money on an expensive-to-maintain communication system. Buy G-E! Its reputation for low cost maintenance requirements is widely respected throughout your industry! And, radio must perform on-the-job *at all times*. When it fails, your profit takes a beating! Superior G-E design . . . G-E components function to protect profit . . . provide always dependable performance. Select 2-way radio equipment carefully and know why G-E is preferred by leading companies in your business.

For additional details write to: *General Electric Co., Section X9845, Communications Equipment, Electronics Park, Syracuse, N. Y.*



*Progress Is Our Most Important Product*

**GENERAL  ELECTRIC**

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**THIS** can help give you  
a real competitive advantage  
on jobs like **THIS**



New 10,500 ft. runway for heavy bombers at Westover Air Force Base. AJAX Cups imprinted with safety messages and AJAX drinking water equipment were used on this job.

Safety messages that get read do help reduce accident rates. The National Safety Council confirms this. And a good safety record with resultant lower insurance costs can give you a competitive advantage on today's close-fisted jobs.

That's why so many cost-wise contractors are using AJAX safety-imprinted Cups and Drinking Water Tanks.

They not only take fresh, clean water economically to men in the field, but also put approved safety messages right in workers' hands several times a day, at moments when they are relaxed, receptive, ready to read.

### A TYPICAL EXAMPLE

(Actual case history from insurance company files)

Contractor A paid a first year premium of \$22,800. His second year he paid \$12,748 — \$9,852 less. \$3,700 of this reduction was due to a difference in his manual rate — but he saved an additional \$6,152 because an active accident prevention program earned him a substantial credit on his second year premium.



**AJAX® CUPS and Drinking Water Tanks** deliver fresh water to workers — mean less time lost on the job. AJAX Cups and Dispensers are also ideal for stationary tanks, barrels, pipeline faucets. 4 oz., 6 oz. and 7 oz. sizes packed imprinted with assorted stock safety messages — or your own message to order.



**GET THE FULL STORY**—Write us today for this new folder which gives full details on imprinted AJAX Cups and equipment.



## United States Envelope Company

General Offices: • Springfield 2, Mass.

15 DIVISIONS FROM COAST TO COAST

C-2C

# SEARCHLIGHT SECTION


(Classified Advertising)

EMPLOYMENT:  
BUSINESS:

"OPPORTUNITIES"

EQUIPMENT  
USED OR RESALE

**When You Need  
LOW COST—DEPENDABLE  
INDUSTRIAL RUBBER PRODUCTS**



**call CARLYLE**

FOR ALL YOUR REQUIREMENTS OF

**RUBBER HOSE**

Air	Solvent	Discharge	Oil Suction	Suction Vacuum
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PROMPT  
SHIPMENTS  
LOW COST  
QUALITY  
PRODUCTS

## EARTHMOVING MACHINERY DISTRICT SALES REPRESENTATIVES

A large manufacturer of rubber-tired and crawler off-the-highway earthmoving equipment has immediate openings for two District Representatives for assignment to territories in Central-Midwest and Northwest United States.

These men should be between 30 and 40 years of age and have from 5 to 10 years experience as salesmen for construction equipment dealers or manufacturers.

Please reply stating full qualifications and requirements to

### RW-6090, CONSTRUCTION METHODS & EQUIPMENT

520 N. Michigan Ave., Chicago 11, Ill.

## WANTED

To sell construction machinery with distributor in Central Illinois. Experienced man, 30-40, to take over exclusive sales territory now open.

Good starting salary, expense and bonus plan—plus excellent opportunity to move upward. We have some of the best lines in the industry for you to sell.

Each and every one of our employees know of this ad.

Write Sales Manager

c/o SW-5932, CONSTRUCTION  
METHODS & EQUIPMENT

520 N. Michigan Ave., Chicago 11, Ill.

## RENT STEEL PILING

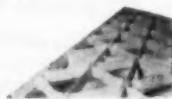
Get the exact lengths and sections you need from Foster—all standard makes, delivered on time—and at Foster's standard low rental rates. Also Rental Pile Hammers & Extractors.

**LB FOSTER Co.**

PITTSBURGH 30 • NEW YORK 7 • CHICAGO 4  
HOUSTON 2 • LOS ANGELES 5

## STOP!

trucks from  
"Bogging Down"  
in  
mud!



Rugged and dependable easily assembled, low in cost 2,500 tons of Road Mats Ideal for sand, dirt, mud. Sold in any quantity. May be used as planking, concrete reinforcing, etc.

**ALTER CO., Davenport 2, Iowa**

## ENGINEERS—FOREMEN—OFFICE MEN

Learn latest methods to organize and run work. Prepare for the top jobs.

Send post card for details

**GEO. E. DEATHERAGE & SON**  
CONSTRUCTION CONSULTANTS  
411 5th Ave., Lake Worth, Florida

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## CONSTRUCTION METHODS AND EQUIPMENT

330 West 42nd St., New York 36 —LO 4-8000

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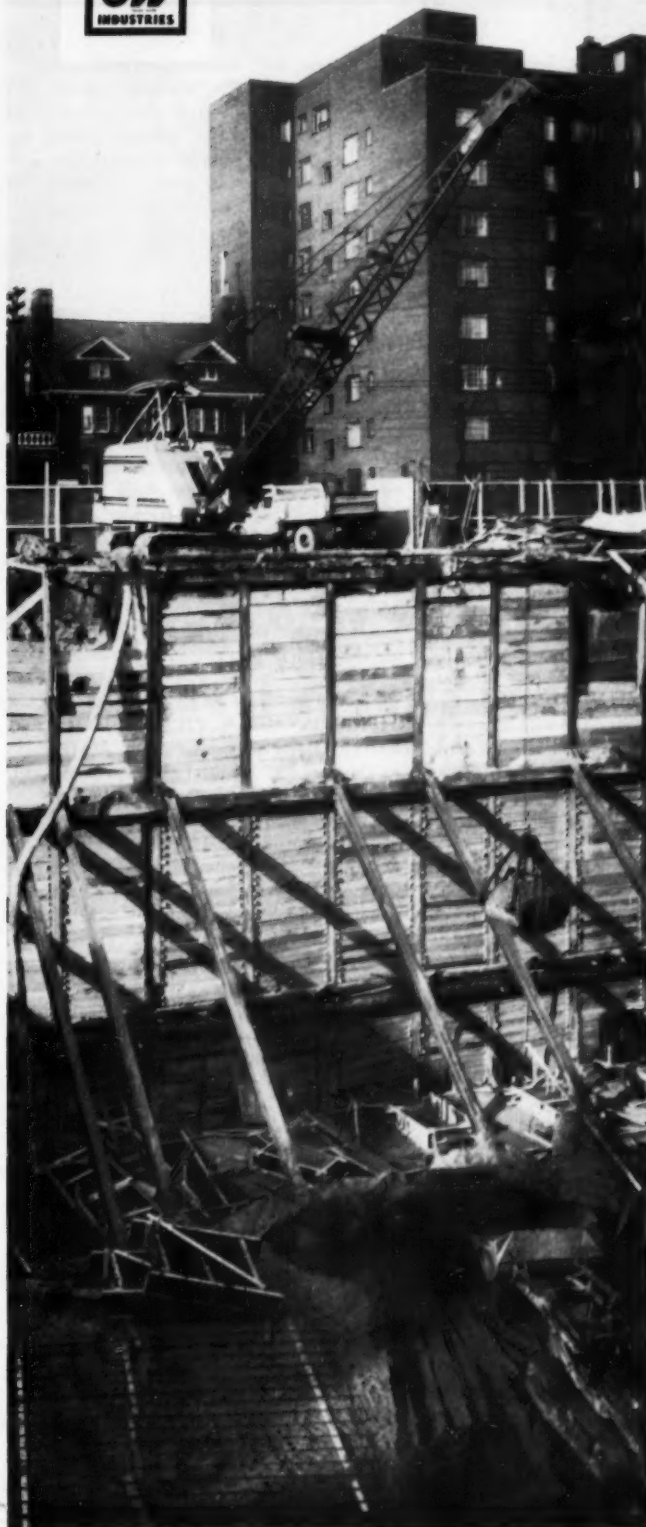
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NEW 287 FT. IMPERIAL OIL BUILDING TO BE EMPIRE'S TALLEST

## TALLEST BUILDING IN BRITISH EMPIRE

Now under construction in Toronto!

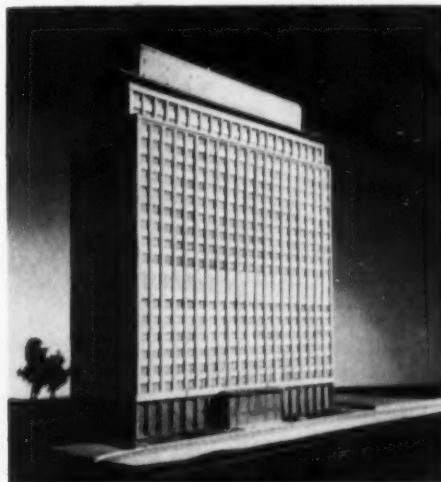
Excavating for the new Imperial Oil Building, now under construction in Toronto, is this Gar Wood crane owned by the general contractors, Pigott Construction Co., Ltd., of Hamilton and Toronto. As one of Canada's leading building contractors, Pigott owns all the equipment required to do their own excavating, pile driving and concrete foundation work.

Founded in 1875, the Pigott organization is now operated by the third generation of the family and is reported to average \$35,000,000 of construction annually in the Province of Ontario alone.

The new building, housing the executive offices of Imperial Oil Ltd., will consist of 19 floors and penthouse. It will be slightly higher than the Canadian Bank of Commerce Building, now the British Empire's tallest building.

No. 5514

**GAR WOOD  
INDUSTRIES, INC.**  
WAYNE, MICHIGAN



**IMPERIAL OIL BUILDING** in uptown Toronto will cost about \$8,000,000. It will measure 245 by 88 ft. on the ground floor and will be 287 ft. high, framed in structural steel and faced with gray limestone.



# Methods Memo . . .

**POURING OF THE LINING** has been completed in the shaft being put down about 1,000 ft at Ojibway, Ont., by Winston Bros. Co. for the Canadian Rock Salt Co., Ltd. (CM&E Oct. 1954, p 54). Pouring was completed at 945 ft below the upper salt vein and well into some rock underlying the first vein. An attempt was made to recover the piping used to circulate chilled brine and freeze the wet area that had to be excavated. But this was unsuccessful, so the pipes were filled with concrete, and the foundations poured over them. Underground development work is next on the schedule for Winston at the bottom of the shaft.

**HIGH TRIBUTE** was paid Guy F. Atkinson recently by 350 celebrants from across the nation who honored the well-known construction man and chairman of the Guy F. Atkinson Co. at a testimonial dinner held in San Francisco. Mr. Atkinson marked his 80th birthday and 64 yr in the construction business.

**URANIUM MINING** will be the business of the newly formed Missouri Uranium Corp., a group of men with contracting and heavy-equipment experience, headed by Raymond E. Bair, treasurer of Union Construction Co. of Kansas City. Missouri Uranium plans mining of ores from proved ore bodies under contracts with the owners; mining, production and sale of ores from its own claims and permits; and the sale of claims and permits to individuals or groups who are in the market. The new corporation has leased more than 57,000 acres and nearly 3,000 claims in New Mexico.

**METHODS' MASTHEAD** changes this month (p 2) with the resignation of Managing Editor Ira F. Angstadt to devote full time to church work. He has been appointed Associate Director of the Lutheran Laymen's Movement for Stewardship of the United Lutheran Church in America, an association in which he has long been active. Ira takes with him the sincere best wishes of our entire staff and, we are sure, those of his host of friends throughout the construction industry.

New on the masthead is Assistant Editor Norman J. Glover. A civil engineer graduate of Columbia University, Norm has handled construction work for such widely scattered organizations as the Alaska Road Commis-

sion, Port of New York Authority, the U.S. Coast Guard and Coakley & Booth, Inc., New York foundation and underpinning contractors.

**DID YOU EVER GET PINCHED** for having a loud exhaust on your trucks? Now a company, Donaldson Company, Inc., 666 Pelham Blvd., St. Paul, Minn., offers to pay any fine imposed on a truck for excess noise, provided it is equipped with one of its new mufflers especially designed for trucks. Before you rush out to buy a set for your trucks, it is only fair to warn you that the warranty is only good for a period of 6 months from date of installation. Even for only 6 months, it is not a bad offer.

**DO YOU HAVE A SON OR A DAUGHTER** who will be a college senior during 1955-56, majoring in chemistry or any branch of engineering? If you do, they might be lucky enough to receive one of the eight \$1,000 college scholarships being offered this year by Atlas Powder Co. Scholarships will be awarded on the basis of scholastic records and the recommendations of faculty members. Not only that, the successful candidates will also have a chance to get practical experience by summer work with pay either in one of Atlas' 12 plants and 3 research labs or with a field representative.

**IF YOU THINK** these new noiseless electric mercury switches and cheese have nothing in common, you're wrong. We learn from Minneapolis-Honeywell, manufacturers of the Micro Switch, that sluggishness caused by moisture in the mercury tube will show after manufacture if the switch has rested for 48 hr. Inspectors looked around for a place to "age" the products undisturbed—like cheese. You guessed it. They are now aged in an old cheese room formerly used by a national dairy.

**WOODEN NAIL KEYS** may be threatened with extinction. A recent release with pictures from the Gaylord Container Corp. makes a pretty good case for its tough corrugated containers, called Nail Pak, for easy packing, storage and handling of nails. Hand holes on two sides make lifting and carrying easy. But there may be some disadvantages. How long can a used carton be left out in the rain and

snow while the construction stiff uses it for nuts and bolts, a waste container, a saw horse, a ready-made form for a small and quick concrete block or two, or when he turns it bottom side up and uses it for a handy seat while eating his lunch or taking a siesta propped up against a wall?

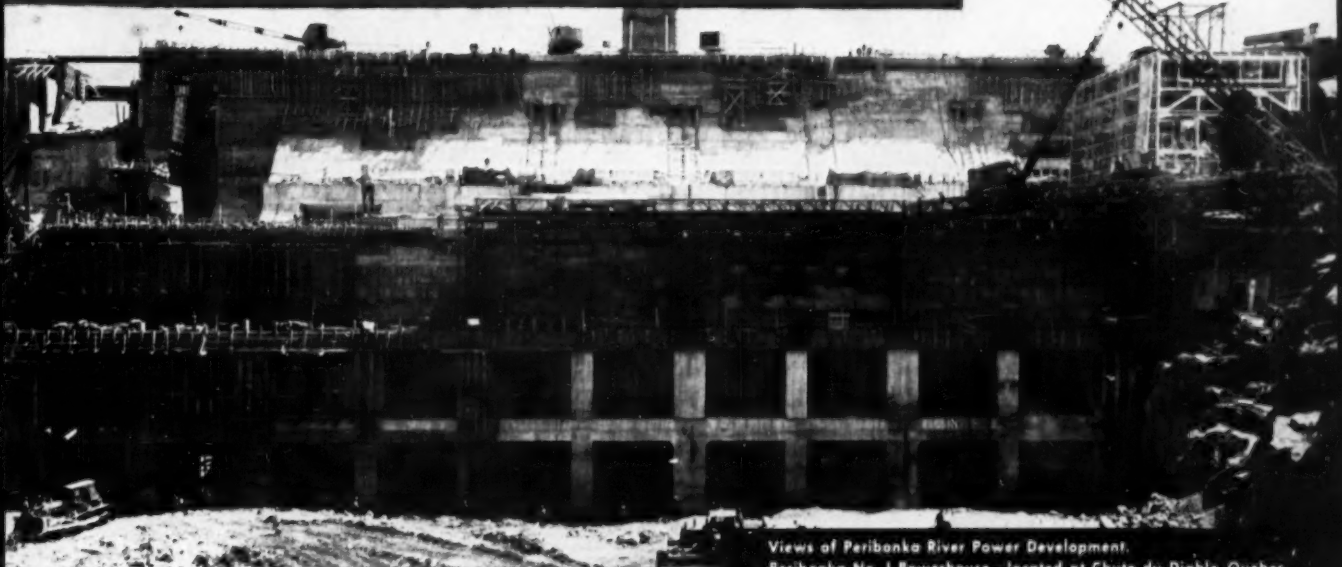
**"INSTRUCTIONS FOR FLAGMEN"** is the title of a small illustrated booklet put out by the Colorado Department of Highways. In 5 min reading time it gives sound advice to the man at each end of a road construction job who is charged with protecting the lives of travelers, workmen on the job and their equipment. A contractor will find it easy to make up such a booklet of his own. If you need ideas, we suppose the good folks from Colorado would be glad to send a copy your way. A self-addressed, stamped envelope accompanying your request would be a reasonable courtesy.

**TRANS-CANADIAN PIPELINE CONSTRUCTION**, stretching from Alberta to Quebec, has inspired one equipment manufacturer to compile and distribute some excellent general information. The Caterpillar Tractor Co. and its Canadian distributors are presenting an illustrated brochure to pipe-line contractors which gives area information on car and plane rentals, air-rail travel, living accommodations and weather. Included are city maps, a mileage map, and a map marked with transportation facilities; also, specification sheets on prime Cat products and a map showing where service facilities for Canada are located.

**WE SEE BY THE LATEST** "Facts for Industry," released by U. S. Department of Commerce, Bureau of Census, that during the 4th quarter of 1954, 64,575 tractors were shipped by manufacturers. This represents a slight percentage increase as against the 3rd quarter when 60,455 units were shipped. Of the 4th quarter total, 54,070 were wheel-type tractors; the remaining 10,505 were tracklaying tractors.

It was interesting to note that of the tracklaying tractors shipped, 3,720 were in the 35-49-hp class. Gasoline is still the No. 1 source of fuel too, as 46,163 were gasoline engine, 16,511 diesel and 1,961 LPG.

rigid concrete specifications here ...



Views of Peribonka River Power Development.  
Peribonka No. 1 Powerhouse—located at Chute du Diable, Quebec.  
Owner: The Aluminum Company of Canada, Ltd., Montreal, Quebec;  
Cons'g. & Des. Engrs.: Shawinigan Engineering Co., Ltd.;  
Contr.: Fraser-Brace Engineering Co., Ltd., Montreal.

## engineers of Peribonka Power Plants employed **POZZOLITH\*** to help meet requirements

Specifications for these important projects were rigid and exacting. Several types and classes of concrete were involved. Engineers insisted on adequate flow and workability without excessive bleeding or segregation.

Field tests showed that despite problems introduced by air-entrapping sands, Pozzolith with its adaptations facilitated production of concrete of the specified qualities, and at a cost far less than by other known methods.

Pozzolith has proved to be an effective aid in producing excellent results and important savings on major jobs across America.

We would welcome an opportunity to work with you to help obtain similar results on your jobs. More details on these and other hydraulic structures in Master Builders Reporter No. 3—48 pages, illustrated. Copy on request.

\* **POZZOLITH**... reduces unit water content up to 15% for a given placeability, and fully complies with the water-cement ratio law. Adaptations of Pozzolith permit rigid control of entrained air. Produced in three standard formulations—High Early Pozzolith, Normal Pozzolith and Low Heat Pozzolith—to give the results required under varying job conditions.



Peribonka No. 1 Spillway—located at Chute du Diable, Quebec.  
Owner: The Aluminum Company of Canada, Ltd.; Engineers and Contractor same as Peribonka No. 1 Powerhouse.



Peribonka No. 2 Powerhouse—located at Chute a la Savane, Quebec. Owner and Engineers same as No. 1 Project. Contr.: Pentagon Construction Co., Ltd., Montreal.

The

**MASTER**



**BUILDERS**



Subsidiary of American-Marietta Company

# New tractor-loader has independent track control... and 56 TIMKEN® bearings

**E**IMCO CORPORATION'S 105 tractor-loader is the first crawler type unit that can reverse one tread while the other is still going forward. Result: shorter, faster turns.

To keep its new tractor-loader on the go, Eimco officials specify Timken® tapered roller bearings at vital points. They're used on the pinion, bevel gear, sprocket, drive and clutch shafts, rollers, idlers and idler sheave—56 of them in all.

The tapered construction of Timken

bearings enables them to take any combination of the radial and thrust loads resulting from rough ground and fast maneuvering. And full line contact between their rollers and races gives Timken bearings extra load-carrying capacity.

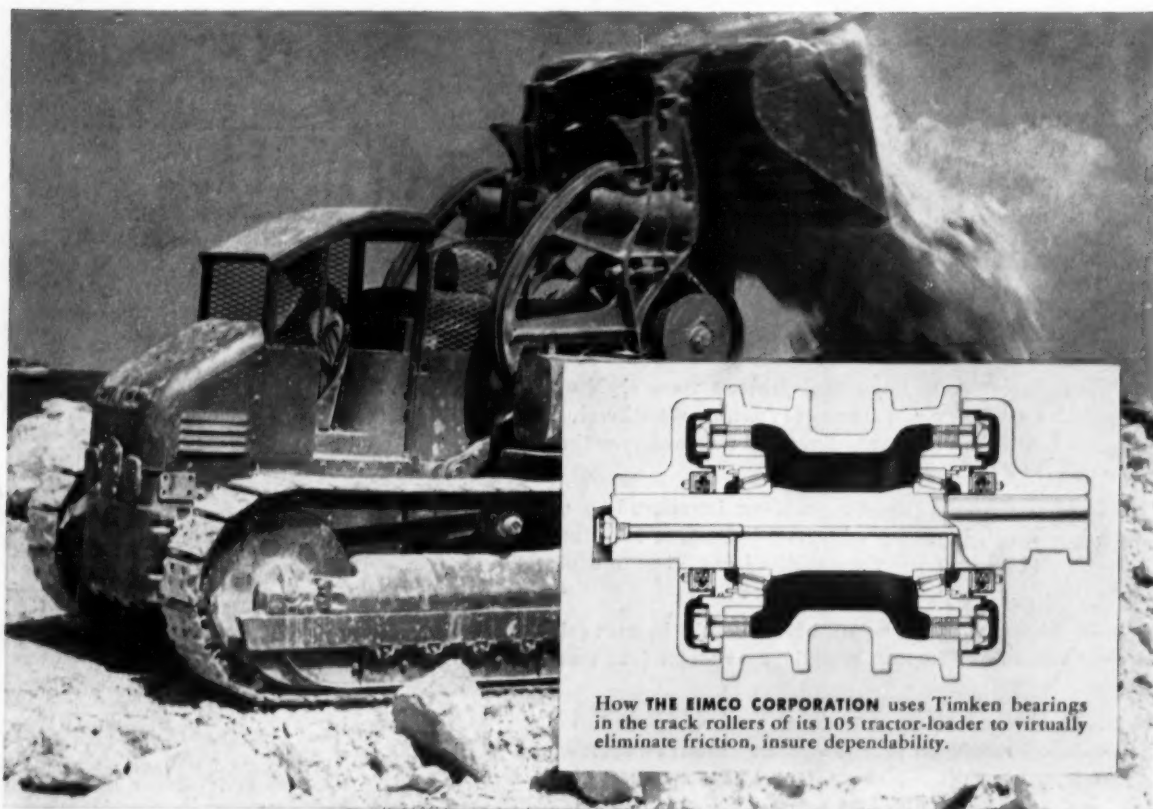
Friction is practically eliminated, too. Timken bearings are geometrically designed to have true rolling motion and precision manufactured to live up to their design. We even make our own steel to insure quality

from beginning to end. We're the only U. S. bearing manufacturer that does.

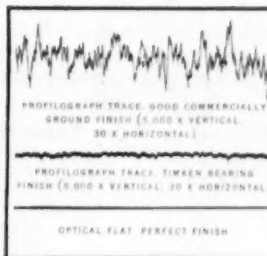
Get the advantages of Timken bearings in the equipment you build or buy. Look for the trade-mark "Timken" on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ont. Cable address: "TIMROSCO".



This symbol on a product means its bearings are the best.



**TIMKEN**  
TRADE-MARK REG. U. S. PAT. OFF.  
**TAPERED ROLLER BEARINGS**



## SMOOTH TO MILLIONTHS OF AN INCH

Surface finish of high quality Timken bearing rollers and races is so smooth that it takes a profilograph to measure its smoothness. This instrument measures surface variations to a millionth of an inch, as shown at the left.

NOT JUST A BALL NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION